

1 Cerro Copper Products, Co.

2 vs.

3 Monsanto Company

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13 VOLUME II

14

15 Deposition of William B. Papageorge

16 Taken October 21, 1994

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1 IN THE UNITED STATES DISTRICT COURT

2 SOUTHERN DISTRICT OF ILLINOIS

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4 CERRO COPPER PRODUCTS, CO.,

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6 Plaintiff,

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8 vs. NO. 92-CV-204-WDS

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10 MONSANTO COMPANY,

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12 Defendant.

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14 Continued Deposition of WILLIAM B.

15 PAPAGEORGE, taken on behalf of the Plaintiff,

16 at the offices of Coburn & Croft, One

17 Mercantile Center, Suite 2900, in the City of

18 St. Louis, State of Missouri, on the 21st day

19 of October, 1994, before Tracey Balsitis,

20 Registered Professional Reporter and Notary

21 Public.

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1 REQUESTS IN THE RECORD

2 Page 347. MR. RICCI: Joe, in the documents
3 that we have reviewed, we have only seen two
4 reports that talk about samples of PCB from
5 other village industries, so I'm going to make
6 a request on the record right now that any
7 additional documents that give that kind of
8 information be produced. And I will follow it
9 up in writing.

10

11 Page 368. MR. RICCI: Joe, I'm going to make
12 a request at this point that if Monsanto
13 retains a copy of the 1974 Hutzinger, Safe and
14 Zitko report that's referenced in this
15 exhibit, we would ask that it be produced.

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1 (Papageorge Deposition Exhibit Number 11
2 marked for identification.)

3

4 WILLIAM B. PAPAGEORGE

5 of lawful age, having been previously duly

6 sworn to testify the truth, the whole truth,

7 and nothing but the truth in the case

8 aforesaid, deposes and says in reply to oral

9 interrogatories propounded as follows, to-wit:

10 EXAMINATION

11 QUESTIONS BY MR. RICCI:

12 Q Good morning, Mr. Papageorge.

13 A Good morning.

14 Q This is a continuation of the

15 deposition that we began yesterday.

16 I'd like to show you a document that's

17 been marked as Exhibit 11 to your deposition

18 and ask you to take a look at it.

19 This is a document with Bates

20 No. CER 015030 and 031, M3782 and M3783.

21 A I scanned the exhibit.

22 MR. RICCI: Let's go off the record

23 for a second.

24 Q (By Mr. Ricci) Mr. Papageorge, this

25 is a June 25, 1970, memo from a Mr. Engman to

1 yourself. Who is Mr. Engman?

2 A He was a superintendent in the
3 Krummrich plant technical services department.

4 Q Why was he providing this memo to you?

5 A To report on the technical activities
6 related to PCB situations in the plant.

7 Q And by the PCB situation, you mean the
8 discharge of PCBs to the sewers and the
9 atmosphere?

10 A Not only discharge but the manufacture
11 of it, the handling of it, and whatever
12 engineering it took as it related to PCBs,
13 Mr. Engman was involved.

14 Q What was his role in the PCB situation
15 as you have characterized it?

16 A He supervised the engineering effort
17 associated with PCBs.

18 Q On the second page of Exhibit 11 under
19 Roman Numeral IV, there is a discussion of
20 removal of soluble PCBs from sewer streams.

21 Can you tell me what is meant by the term
22 soluble PCBs?

23 A That's the PCBs present in the
24 streams, water streams.

25 Q Can you have insoluble PCBs present in

1 water streams?

2 A It is possible. It would be two

3 layers, however.

4 Q What about PCBs that have adhered to

5 sediments that are suspended in water streams?

6 Would that be considered a soluble PCB?

7 A Not really.

8 Q Do you know how soluble PCBs are in

9 water?

10 A I have -- yes, I have some information

11 in mind.

12 Q What is your understanding as to the

13 solubility of PCBs in water?

14 A At room temperatures, the solubility

15 -- basically the solubility will vary with the

16 particular commercial mixture.

17 Q Can you give me a range?

18 A The solubility of aroclor 1242 at room

19 temperature in water was determined to be

20 about 200 parts per billion maximum. The

21 solubility of aroclors 1254 and 1260 were less

22 than that. As I remember, about a hundred or

23 so for 54 and about 50 or so for 60.

24 Q Does that mean that the maximum

25 concentration of PCBs that you will find

1 dissolved in water at room temperature, say if
2 you are talking about aroclor 1242, would be
3 200 parts per billion?

4 A It does.

5 Q Now, the sampling results that you
6 were obtaining during this time period for
7 PCBs in your sewer streams was often times
8 greater than 200 parts per billion; is that
9 true?

10 A I don't know what you mean by often.
11 There were some samples that did measure that.

12 Q What did you attribute the results in
13 excess of the solubility of PCBs in water to?

14 A That could be due to the presence of
15 other chemicals that are solvents for PCBs.
16 It could be due to the presence of sediment to
17 which PCBs have attached themselves. It could
18 be due to an emulsion between the water and of
19 the PCBs brought about by, say, for example,
20 vigorous agitation, or it could be due to
21 actually a two-phase mixture, water in one
22 phase, PCBs in another, and the sample taken
23 got both of those layers. Those are just some
24 examples of what could happen.

25 Q Were there any materials that were a

1 solvent of PCBs that the Krummrich plant

2 regularly discharged to its sewers?

3 A I don't know about regularly.

4 Q At any time?

5 A For example, I recall a situation in

6 which a detergent was used to wash down the

7 concrete floor. That picked up a lot more

8 PCBs than water would normally dissolve.

9 You asked about other solvents. I

10 don't have any specific one in mind or

11 incident in mind.

12 Q Is benzene a solvent for PCB?

13 A Benzene, toluene, xylene. There must

14 be a thousand chemicals that would dissolve

15 it.

16 Q So the presence of benzene or toluene

17 or xylene in the sewer stream could increase

18 the concentration of dissolved PCBs in a

19 basically aqueous stream that also contained

20 those solvents?

21 A It could.

22 Q Did you ever verify or did you ever

23 look into whether that was in fact occurring

24 in the Krummrich sewers?

25 A Not personally, no.

1 Q Do you know if anyone ever did?

2 A I don't know.

3 Q You mentioned as another reason why
4 the sewer streams could contain concentrations
5 in excess of the solubility of PCBs in water
6 at room temperature, that there could be an
7 emulsion caused by vigorous agitation?

8 A Yes.

9 Q What is an emulsion?

10 A An emulsion is a mixture of two
11 liquids in situations where neither of these
12 liquids will dissolve each other. And I'm
13 trying to think of an example that might work.
14 If you can picture an oil and water stirred
15 violently to the point where the resulting
16 mixture is milky looking rather than two
17 layers, that milky looking result is an
18 emulsion. I can't think of a real good
19 example.

20 Q Sort of like when you shake up a salad
21 dressing?

22 A That's a good example. For a brief
23 moment, that salad dressing is an emulsion
24 until the layers separate.

25 Q Could the turbulence of the waters

1 flowing through the sewer system create an
2 emulsion? An emulsion of PCBs in water is
3 what I'm talking about.

4 A It is conceivably possible. Your
5 sample would have to be close to that very
6 high turbulent zone.

7 Q You indicated that sediments -- the
8 presence of sediments in the sewer stream
9 could cause sampling results or analytical
10 results in excess of its solubility in PCBs?

11 A I did.

12 Q And how is that?

13 A How is what?

14 Q How is it the presence of sediments
15 can lead to analytical results showing PCBs in
16 excess of its solubility?

17 A First of all, the sediments themselves
18 have to be exposed to the PCBs somewhere.
19 PCBs have a characteristic where they
20 tenaciously, almost magnetically cling to
21 particles or surfaces. And if the two do get
22 together, those particles of sediment or solid
23 matter that are introduced into a water stream
24 will be carried along with that water stream.
25 And dependent upon how samplings are taken and

1 how the analysis is conducted, you can
2 determine the PCBs present in that total
3 sample. And much of that PCB content will be
4 really in the sediment and not in the water
5 itself.

6 Q The analytical technique that the
7 Monsanto Company was employing in the early
8 '70s would not distinguish between PCBs that
9 adhere to sediment and PCBs dissolved in
10 water?

11 A It could distinguish and the chemist
12 has to report in his results which of the --
13 what kind of sample he looked at.

14 Q In the program for aroclor pollution
15 control that was ongoing in the early and mid
16 '70s, do you recall ever requesting that the
17 chemist offer analyst, perform that kind of
18 exercise, with respect to any of the sewer
19 samples from the Krummrich plant?

20 A No. I don't recall specifically
21 asking, no.

22 Q Did you not feel that that was a
23 relevant consideration?

24 A Certainly. I just felt I knew the
25 people involved. When they report, they would

1 report what's in the sample received in the
2 laboratory.

3 Q Okay. I don't think I understood your
4 answer, and it is possibly because it wasn't a
5 very good question so I'm going to try again.

6 Did you feel that knowing the extent
7 to which the PCBs that you were seeing out of
8 the Krummrich sewers was attributable to
9 sediments versus dissolved PCBs was a relevant
10 consideration?

11 A Yes.

12 Q If that's the case, why wasn't the lab
13 reporting that on a regular basis if in fact
14 they were not?

15 A Well, it was understood that they were
16 reporting the PCB content of the sample as
17 received in the laboratory.

18 If the sample was an emulsion, they
19 would extract the PCBs by a certain method to
20 get both -- get it all out. If it was a clear
21 water sample, they would use another
22 extraction method. If it was a cloudy sample
23 with dirt in it, they would treat it
24 differently, but the sample that's introduced
25 into the instrument contains all the PCBs the

1 sample -- the analyst was able to get out of
2 the sample as received.

3 Q I'm sorry. Go ahead.

4 A So when they reported PCBs in this
5 sample from this spot in the plant, we all
6 knew that that was the PCBs they were able to
7 determine.

8 Q So you were getting the total PCBs in
9 the sample, but you weren't getting how much
10 of it was derived from sediments and how much
11 was dissolved and how much of it was in
12 emulsion?

13 A That is correct.

14 Q Did you feel that it was important or
15 relevant to what you were trying to do to know
16 how much was coming from sediments versus how
17 much was dissolved?

18 A It was more important to me personally
19 to know how much PCBs was entering an
20 undesirable location. Whether it was an
21 emulsion or on sediment or in water or in the
22 solvent was really immaterial at that point.

23 Once you determine the amount and you
24 find that amount is unacceptable, then you go
25 back and determine exactly what was the

1 carrier, what was the method of transfer to
2 that undesirable spot.

3 MR. RICCI: I'm sorry. Could you read
4 back that last answer.

5 (The requested portion of the
6 record read by the reporter)

7 Q (By Mr. Ricci) If I understand that
8 last answer, it was your view, at least, that
9 only if you concluded that the total PCBs was
10 unacceptable, would you then look at whether
11 it was sediments or dissolved off an emulsion?
12 Is that a fair statement?

13 MR. NASSIF: Objection. Asked and
14 answered.

15 A Yes.

16 MR. RICCI: I'm just trying to clarify
17 the answer, Joe. I'm not a chemist, and I'm
18 trying to understand the testimony that he has
19 given.

20 A Yes.

21 Q (By Mr. Ricci) Did you ever determine
22 that the PCB level in the Krummrich sewers
23 were at unacceptable levels?

24 A The level in what?

25 Q In the Krummrich sewers?

1 A Well, from all the documents we have
2 seen, I think we have seen that the target
3 that I had established was 10 parts per
4 billion, so there were periods before that was
5 achieved when the level did reach an
6 unacceptable point.

7 Q Did you ever go back at that point and
8 say I want to know how much of this is in
9 sediments and how much is dissolved and how
10 much is in solvents?

11 A It makes no difference to me. All I
12 want to know is what's entering the
13 environment. It is up to the plant in
14 controlling those losses, to know was it the
15 detergent wash we had or was it the sand we
16 poured on the spill that was hosed down and
17 got into the water? Whatever. It is their
18 responsibility to determine what caused that
19 high number.

20 Q Did the plant personnel involved in
21 this PCB control program ever ask the lab to
22 delineate in its analysis PCBs from sediments
23 or PCBs dissolved in water or in solvent?

24 A You will have to ask the plant people
25 that. I don't know.

1 Q Under Roman Numeral V of Exhibit 11,
2 there is a discussion of PCB levels in the
3 atmosphere. Do you see that?

4 A I do.

5 Q Do you understand that to be air
6 discharges of PCBs?

7 A Yes.

8 Q Was there any method that you are
9 aware of by which PCBs released to the air
10 could be washed into the sewers either by
11 rainfall or other precipitation?

12 A Washed to the sewers, I have never
13 studied that, frankly. This was primarily one
14 of exposure to the workers breathing material.
15 I personally never approached PCBs in the air
16 as being a primary source of presence in the
17 waters.

18 (Papageorge Deposition Exhibit Number 12
19 marked for identification.)

20 Q (By Mr. Ricci) Mr. Papageorge, let me
21 show you a document that's been marked as
22 Exhibit 12 to your deposition.

23 This is a document with Bates No. CER
24 011497 through 501, M4912 through M4916. Take
25 a look at it.

1 A I have scanned the exhibit.

2 Q This is an October 7, 1970, memo from
3 Mr. Savage to yourself. Who was Mr. Savage?

4 A At that time Mr. Savage was the
5 manager of manufacturing of the functional
6 fluids business group.

7 Q And that was the business group with
8 responsibility for Krummrich and Anniston?

9 A Yes.

10 Q The title of the document appears to
11 be "September PCB Report, Manufacturing." Do
12 you see that?

13 A I do.

14 Q Is this a regular monthly report that
15 was prepared at this time?

16 A Yes.

17 Q Why was it prepared?

18 A To communicate activities associated
19 with PCB manufacture. Primarily to me so I
20 could include it in my monthly report.

21 Q So that any -- I will withdraw that.
22 In the paragraph under the heading, "PCB
23 Levels in Snow Creek" --

24 A I see that.

25 Q -- there is a suggestion of some

1 sampling results that were obtained and an
2 identification of contributing causes. And
3 one of the contributing causes relates to the
4 limestone pit being overloaded. And another
5 of the contributing causes relates to sewerage
6 of excessive amounts of muriatic acid. Do you
7 see that?

8 A I see that.

9 Q Now, in your testimony yesterday, I
10 had understood that Snow Creek only received
11 discharges from the Anniston plant by way of
12 rainfall that traversed over the plant and
13 flowed into the creek; is that correct?

14 A That is correct. I should have
15 mentioned that when the facilities at the
16 plant got overloaded, they would overflow on
17 the ground and head for the Snow Creek.

18 Q Which facilities?

19 A Like the limestone pit, which was
20 supposed to handle that muriatic acid, and so
21 on.

22 Q So if the limestone pit got
23 overloaded, it flowed to Snow Creek?

24 A Yes. It got on the ground and
25 eventually found its way toward Snow Creek.

1 Q What about the sewers if they got
2 overloaded? Would they flow to Snow Creek?

3 A I'm not aware of any overloading of
4 sewers. But if the sewer did overload, it
5 would have to spill over in the department
6 across the concrete floor onto the crushed
7 rock that surrounded it and eventually work
8 its way toward the creek.

9 Q But you are not aware of that ever
10 happening?

11 A No.

12 Q In the paragraph right below the
13 number three in that first section, there is a
14 discussion of leaching of PCBs from the creek
15 bed. Do you see that?

16 A Yes.

17 Q What is meant by the term leaching of
18 PCBs from the creek bed?

19 A That's the transfer of PCBs present in
20 the soil or clay, or whatever makes the creek
21 bed bottom, into the water that was sampled.

22 Q When we were discussing the solubility
23 of PCBs, there was another issue that came to
24 mind. Would the presence of an acidic
25 environment in the sewers increase the

1 solubility of PCBs?

2 A Yes.

3 Q The leaching that's discussed in

4 Exhibit 12, would that in effect be the liquid

5 in the creek bed picking up the sediments that

6 would lead to, if the sediments were PCB

7 contaminated, higher PCB analytical results?

8 A Yes. It is the reverse of what

9 happened in the past. It picked up a PCB that

10 was deposited there in the past, and the

11 current sampling picked up that.

12 Q That would be caused by turbulence in

13 the creek?

14 A That would be a contributing factor,

15 yes.

16 Q Any other contributing factors that

17 might cause that to happen? The picking up

18 I'm talking about.

19 A Not that I can think of.

20 Q Now, the only -- well, let me withdraw

21 that. The main source of water into the Snow

22 Creek creek bed was rain runoff; is that

23 correct?

24 A Yes.

25 Q Is it correct to say then that the

1 turbulence created by the rain runoff down
2 there was sufficient to pick up sediments that
3 led to increased PCBs in your liquid samples
4 from the creek?

5 A We are both kind of speculating. I
6 would suggest that that is a major
7 contributor.

8 Q Again, under "Anniston plant," there
9 is a heading "Regulatory Action"?

10 A I see that.

11 Q And the memo documents a contact
12 between Monsanto and the Alabama Water
13 Improvement Commission. If contacts had been
14 made between Monsanto in the Illinois water
15 authorities regarding PCBs at the Krummrich
16 plant, would it have been documented in these
17 monthly reports?

18 MR. NASSIF: Objection. You asked him
19 that question yesterday, and he answered it.

20 A Not necessarily. Depends on the
21 author of the initial report, what he puts in
22 his report.

23 Q (By Mr. Ricci) Why did Mr. Savage
24 mention this contact in this report?

25 MR. NASSIF: Objection. Calls for

1 speculation on the part of the witness.

2 A You will have to ask Mr. Savage. I

3 don't know.

4 Q (By Mr. Ricci) You don't know why he

5 did it?

6 A No.

7 Q Did you talk about these reports with

8 Mr. Savage?

9 A Certainly.

10 Q Did you give him any idea of the kinds

11 of things that you felt you had to put in your

12 reports?

13 A Yes.

14 Q Did you feel that if there were

15 contacts between Monsanto and state regulatory

16 agencies regarding PCBs discharges, that was

17 something that you would want to put in your

18 reports?

19 A It was assumed that the contacts would

20 be made anyway. It was expected that they

21 would be made. Reporting them was left up to

22 the authors, and the frequency of the contacts

23 and so on.

24 Q That's what I'm asking you since you

25 were the author of a number of reports

1 regarding the PCB control program.

2 A Yes.

3 Q In preparing your reports did you feel
4 that that was something you would want to
5 include in your reports?

6 A Not always, no.

7 Q What would determine whether you would
8 want to include it or whether you wouldn't?

9 A Probably a request or demand by the
10 regulatory people that was much different than
11 what we already understood. In other words, a
12 piece of information that was totally new and
13 different. But just to sit down and talk with
14 representatives of the PCB situation, that was
15 considered to be routine. Nothing unusual
16 about that.

17 Q So you felt that, at least in the
18 reports you were preparing, routine contacts
19 need not be included?

20 MR. NASSIF: Objection. Asked and
21 answered.

22 A That's correct.

23 Q (By Mr. Ricci) Thank you. On the
24 last page of this Exhibit 12, there is a
25 heading "PCB Levels in Atmosphere." I'm

1 sorry. The next to the last page, page 4.

2 A I see that, yes.

3 Q And again this refers to losses to the

4 air?

5 A Yes.

6 Q How were the losses to the air

7 estimated on a pounds per day basis?

8 A The sampling device is really an air

9 pump, and the air is measured and it is run

10 for so many minutes or hours or whatever.

11 This air is bubbled through a solvent. It

12 picks up the contaminants in the air. And by

13 calculation, one can determine that if so much

14 material was found in an hour, then you

15 multiply that by 24 to get you the day number.

16 I should make a further explanation of

17 when I say 24, that assumes the piece of

18 equipment which is being sampled runs 24

19 hours. If it only runs 6 hours during that

20 period, then 6 is used as the multiplier.

21 Q Okay. Again, referring back to the

22 first page of Exhibit 12, the regulatory

23 action that Mr. Savage documents in this memo,

24 would you consider that to be a routine

25 contact as opposed to a special contact or a

1 contact that you would feel should be included
2 in a report?

3 A I would expect that to be routine.

4 That's part of their job is the way I saw it.

5 Q The contact that's referenced here is
6 part of their job?

7 A Yes.

8 (Papageorge Deposition Exhibit Number 13
9 marked for identification.)

10 Q (By Mr. Ricci) Mr. Papageorge, let me
11 show you a document that's been marked as
12 Exhibit 13 to your deposition.

13 This is a document with Bates No. CER
14 011505 through 514, M4920 through M4929, and I
15 will ask you to take a look at that.

16 A I have scanned the document.

17 Q Turn, if you would, to page 4. I'm
18 sorry. You can stay where you are for a
19 second. Is this one of the monthly reports
20 that you prepared?

21 A It is.

22 Q And this is a report that you prepared
23 based in part upon the information that you
24 received from Mr. Savage?

25 A Yes.

1 Q What was the purpose of this report?

2 A To communicate to the addressees, who
3 were key in this PCB business, the status of
4 the activities that had transpired in the
5 previous month.

6 Q Can you just go through the addressees
7 and identify what their positions were?

8 A Yes. I will try to recall all of
9 them. Mr. Marsh was the Monsanto
10 representative in Europe. And he was the one
11 that we looked to to take care of the PCB
12 issue there.

13 Mr. Clark represented the plasticizers
14 business group.

15 Mr. Durland was the Monsanto
16 representative in Japan.

17 Dr. Farrar was the director of
18 research for the plasticizers group.

19 Mr. John was a member of Monsanto's
20 corporate public relations department.

21 Mr. Keller or Dr. Keller was the
22 manager of Monsanto's analytical research
23 section.

24 Mr. Kuhn was a member of Monsanto's
25 corporate engineering department.

1 Mr. Gossage was the director of
2 marketing for the functional fluids business
3 group.

4 Mr. Park was a member of Monsanto's
5 legal department.

6 Dr. Richard was a director of research
7 for the functional fluids business group.

8 Mr. Savage was the manager of
9 manufacturing for the functional fluids
10 business group.

11 And Mr. Wheeler represented the
12 Monsanto corporate medical department.

13 Q You indicated that Mr. Clark
14 represented the plasticizers business group?

15 A Yes.

16 Q Do you know what his title was or how
17 high up in management he was?

18 A He reported to Mr. Springgate who was
19 the director of the business group. I today
20 do not recall his title.

21 Q And Mr. Springgate is copied on this
22 memo?

23 A He is.

24 Q Who would Mr. Springgate have reported
25 to?

1 A To Mr. Mason who was copied.

2 Q And what was Mr. Mason's title?

3 A He was the assistant general manager

4 of the organics chemical department.

5 Q So functional fluids was part of

6 organics chemical at this time?

7 A Yes.

8 Q And then who would Mr. Mason report

9 to?

10 A Howard Minckler, M-I-N-C-K-L-E-R.

11 Q And his title was?

12 A He was vice president and general

13 manager of the organic chemicals division.

14 Q How was this distribution list

15 determined?

16 A I just sent this to the individuals

17 involved with PCBs that I believed had a need

18 to know at least some of this information,

19 whether it be in marketing or manufacturing or

20 research.

21 Q Turn, if you would, to page 4 of

22 Exhibit 13.

23 A I have it.

24 Q There is a discussion of the

25 absorption of aroclor from plant water

1 effluent. Do you see that?

2 A I see that.

3 Q What was the purpose of this project

4 or the project that's discussed under that

5 heading?

6 A This was one of the studies being made

7 to provide Monsanto with information regarding

8 potential methods for controlling the loss of

9 PCBs to the environment.

10 Q There is a statement that these

11 columns were placed on stream 10/2 at the

12 aroclor sump. Is that 10/2 referring to the

13 date?

14 A Yes.

15 Q What is the aroclor sump?

16 A This was a pit really, a concrete pit

17 below ground level underneath the operating

18 unit which collected any material that leaked

19 onto the floor and was hosed down into this

20 sump.

21 Q Is this in Anniston?

22 A Both plants had it. There is no way

23 for me to know exactly which one they are

24 talking about here.

25 Q You don't have any recollection of

1 whether this system was installed in Anniston
2 or Krummrich?

3 MR. NASSIF: Object. He just answered
4 both plants had it.

5 MR. RICCI: No. Both plants had the
6 sump. I'm talking about the treatment system
7 that's being discussed here.

8 A My best recollection is that this was
9 installed at Anniston.

10 Q (By Mr. Ricci) This was more less an
11 experiment to determine the effectiveness of
12 this system in removing aroclors from the
13 effluent?

14 A Yes.

15 Q Why was Anniston chosen to perform
16 that experiment?

17 A No real reason. Toss of the coin type
18 of decision. Either one would have done as
19 well.

20 Q Based upon the results that are
21 recounted in this memo, did you feel that the
22 experiment was a success or that the system
23 there was achieving a desirable goal in terms
24 of its ability to remove PCBs from the
25 effluent?

1 A Yes. Technically this experimental
2 system was a success.

3 Q Was it ever implemented on a
4 plant-scale basis?

5 A No.

6 Q Why is that?

7 A It was determined from the information
8 obtained from this study that the removal of
9 PCBs on carbon would amount to unmanageable
10 amounts of carbon which led to further
11 problems disposing of that carbon. So it was
12 believed that the trade-off via this route
13 wasn't responsible. You end up with a bigger
14 problem than you started with.

15 Q At the Krummrich plant, Monsanto
16 installed an incinerator to incinerate spent
17 PCBs; is that correct?

18 A That is correct.

19 Q Could the carbon that was generated by
20 a system such as this have been incinerated in
21 the Monsanto incinerator?

22 A No.

23 Q Why is that?

24 A The Monsanto incinerator handled only
25 liquid, not solids.

1 Q The production of PCBs which continued
2 at this point continued to generate a solid
3 still bottom material, didn't it?

4 A Yes.

5 Q And that still bottom -- go ahead.

6 A You have described the material as a
7 solid still bottom. The material is only
8 solid when it is cooled. It is like road tar
9 when it is cooled. While it was in the still
10 pot and being agitated it is still a liquid.

11 Q Were the still bottoms generated in
12 the production of PCBs incinerated in the
13 Monsanto incinerator?

14 A Yes.

15 Q They were?

16 A They were blended with waste PCBs and
17 pumped into the incinerator.

18 Q If you turn to page 7 of the memo, I
19 have a question for you. There is a reference
20 to a meeting between the -- or a meeting held
21 with the Alabama Water Improvement Commission
22 regarding progress made at Anniston on the PCB
23 program.

24 A I see that.

25 Q Was this a nonroutine contact and

1 therefore that's why it was included in your
2 report?

3 A No. This was just a follow up from
4 that previous month's report. If you recall,
5 they mentioned that they had to cancel a
6 meeting because of some illness. This just
7 follows up on that.

8 Q By the previous report, you are
9 referring to Exhibit 12?

10 A Yes.

11 Q And the previous report was a memo
12 from Mr. Savage to yourself, correct?

13 A Correct.

14 Q And the meeting that was planned but
15 did not take place was reported to you by
16 Mr. Savage. I had understood from your prior
17 testimony that you considered that meeting to
18 be kind of a routine thing?

19 A That is true.

20 Q And this meeting that's referenced in
21 Exhibit 13, which is your report, I think you
22 have also testified was kind of a routine
23 contact?

24 A That's right.

25 Q I guess I'm a little confused because

1 you indicated previously that you didn't feel
2 that routine contacts would go in your report,
3 and yet here is one in your report?

4 A I didn't say that.

5 Q Okay. That's why I was confused.

6 Maybe you can clarify it for me.

7 A You asked me whether it was my opinion
8 whether it was of critical importance. You
9 didn't ask me if I included it in my report.
10 The report previous to this month's report had
11 that reference, and I was following up the
12 following month.

13 Q So if Mr. Savage reported it to you,
14 you included it in your report?

15 A Yes, sir.

16 Q Whether it was routine or not?

17 A Correct.

18 (Papageorge Deposition Exhibit Number 14
19 marked for identification.)

20 Q (By Mr. Ricci) I'm handing you a
21 document that's been marked as Exhibit 14 to
22 your deposition. This is a document with
23 Bates No. CER 015447, M3920. Ask you to take
24 a look at that.

25 A I have reviewed the exhibit.

1 Q This is a November 13, 1970, major
2 spill investigation. You are copied on this
3 document; is that correct?

4 A That is correct.

5 Q Can you tell by looking at this
6 document who the author is?

7 A Yes. Mr. Rasmussen, at the very top
8 of the first page.

9 Q Okay. Who was Mr. Rasmussen?

10 A He was an employee of the W. G.
11 Krummrich plant that worked in the plant
12 technical services department.

13 Q Did he have some involvement in the
14 aroclor control program?

15 A Not that I recall. I just don't
16 remember.

17 Q At the bottom of the first page there
18 is an investigating committee. Do you see
19 that?

20 A Yes.

21 Q Did the investigating committee have
22 any input into the preparation of this report?

23 A Oh, yes.

24 Q What would their role be in the
25 preparation of the report?

1 A They prepare the rough draft really of
2 their findings.

3 Q On the first page under the heading
4 "Consequence," there is a statement, "The loss
5 of material to the sewer presents a serious
6 pollution problem with prolonged effects which
7 are difficult to follow or to control." Do
8 you agree with that statement?

9 A Not really.

10 Q Why is that?

11 A Well, first of all, the amount of
12 material really wasn't great. The area in
13 which this material was eventually found did
14 not contain any kind of wildlife, so to speak,
15 that would have been affected. And this was
16 not considered to be a situation where
17 individuals might be unduly exposed.

18 Q Did you express your disagreement with
19 that statement to anyone within Monsanto at or
20 around the time that you received this
21 document?

22 A I don't recall specifically, but it is
23 highly likely I would have, yes.

24 Q On the next page, there is a
25 statement, "However, its continued production

1 -- referring to the production of arolors --
2 is dependent on the success of our control
3 measures to prevent loss to the environment.
4 This is because it is unaffected by biological
5 action and can become concentrated in the food
6 chain until irreversible changes in the
7 ecology occur." And food chain is in
8 quotation marks. Do you see that?

9 A Yes.

10 Q Do you agree with those statements?

11 A Today no.

12 Q Why is that?

13 A Because as evidence developed since
14 1970, that changed our understanding that was
15 assumed at that time without any hard data.

16 Q Which statements are you referring to?

17 A Reference to unaffected by biological
18 action. That was assumed at that time. In
19 other words, it was a very conservative
20 thinking at the time.

21 Since then studies have shown that
22 biological action does take place under some
23 conditions. Concentration in the food chain
24 irreversible on the ecology, I think that's
25 been dispelled, too. There are

1 concentrations, but the irreversible changes
2 have not been demonstrated.

3 Q At the time did you agree with that
4 statement?

5 A Yes. For the purposes of
6 administering my program, I took that
7 conservative approach.

8 Q In reviewing the sequence of events,
9 it is my understanding that Rogers Trucking
10 was used to -- Rogers trucks was used to take
11 Therminol out of a heat exchange unit and
12 transfer it to a storage tank. Is that your
13 understanding of this description as well?

14 A Yes.

15 Q Do you have any recollection of this
16 event?

17 A Yes. I remember the overall
18 situation, not the specifics.

19 Q Do you recall or have you seen from
20 this memo how much material was actually
21 released to the sewers?

22 A I would have to read it.

23 Q You know, I did, and I couldn't find
24 it, and I was thinking I just missed it.

25 A I don't see any reference to the

1 amount.

2 Q I believe you had referenced in one of
3 your previous answers that you felt that it
4 was an insignificant amount though?

5 A Yes.

6 Q What did you base that answer on?

7 A Well, I knew it was less than a tank
8 truck full. And when I think of PCBs I think
9 of billions of pounds. So relatively
10 speaking, it just did not strike me as being a
11 big amount.

12 Q The heading of this report is, "Major
13 Spill Investigation." Do you know whether the
14 company at that time made distinctions between
15 major spills and minor spills or how something
16 was identified as a major spill?

17 A It was a judgment call primarily on
18 the part of the plant manager. And the intent
19 was to distinguish between a drip out of a
20 valve onto the floor as compared to a drum
21 that might be tipped over compared to
22 something like the situation described in this
23 investigation report. So it is a call made by
24 the person responsible at the plant, the plant
25 manager.

1 Q Are you aware of any other instances
2 where Rogers Trucking was used to convey spent
3 aroclors from within the plant?

4 A Not specifics, no.

5 Q Based upon the dealings that you have
6 had with Rogers over the years, would it be
7 your understanding that once this job was
8 completed, Rogers would have to wash out its
9 trailer?

10 A Well, somebody would have to wash it
11 out.

12 Q Whether it be Monsanto or Rogers?

13 A Correct.

14 Q Are you aware of any situations where
15 Monsanto washed out Rogers trailers?

16 A Yes. That was the practice
17 established after some unfortunate situations
18 with the Rogers people.

19 Q Unfortunate situations in terms of
20 what?

21 A In terms of our perception that he was
22 doing a sloppy job of dumping the washings
23 where he shouldn't be and so on.

24 Q What perceptions did you have in terms
25 of where he was dumping the washings?

1 A As I understood it, it was in the area
2 that we described yesterday, Dead Creek area.
3 That general area is where he operated and
4 disposed of his washings really out into the
5 environment.

6 Q Was it your understanding that he was
7 disposing of his washings in Dead Creek?

8 A Yes.

9 Q What did you base that understanding
10 on?

11 A Well, the plant informed me of that.

12 Q Was it also your understanding that he
13 was dumping his washings in the sewers,
14 village sewers?

15 A I didn't associate it with sewers, no.
16 This was the open dumping in the creek bed
17 that bothered me as an environmental
18 perception.

19 Q So when you found out about that, you
20 recommended that --

21 A I encouraged that they either get
22 Mr. Rogers straightened out or change haulers
23 or do something.

24 Q And what's your understanding as to
25 what was done?

1 A They took on the job of cleaning out
2 the tanks, tank trucks, in Monsanto's plant.

3 Q Now, Rogers hauled other materials
4 besides PCBs from Monsanto, correct?

5 A Correct.

6 Q Did that practice of washing his
7 trucks within the Monsanto plant apply only to
8 the trucks that were used for aroclors?

9 A No. Anything.

10 Q Anything that --

11 A That was Monsanto material.

12 Q Anything that he hauled from Monsanto
13 you wanted to have washed in the plant?

14 A Correct.

15 Q And that washing occurred at the rip
16 track?

17 A Yes.

18 (Papageorge Deposition Exhibit Number 15
19 marked for identification.)

20 Q (By Mr. Ricci) Mr. Papageorge, I'm
21 handing you a document that's been marked as
22 Exhibit 15 to your deposition.

23 This is a document with Bates No. CER
24 011552, M4967. I would ask you to take a look
25 at it.

1 A I have read the document.

2 Q This is a memo from yourself to

3 Mr. Savage, dated December 7, 1970; is that

4 correct?

5 A That is correct.

6 Q What was the purpose of this memo?

7 A I wanted to make certain that the

8 plant representatives understood the

9 seriousness of getting down to eventually 10

10 parts per billion in their plant effluents,

11 waste water effluents.

12 The reports I had been getting showed

13 a decrease in the amount of PCBs, but I felt

14 at the time that it wasn't happening quickly

15 enough, for me anyway, so I decided to send

16 out this memo as a reminder that I was

17 serious.

18 Q You and Mr. Savage were not in the

19 same chain of command, were you?

20 A Mr. Savage and I reported equally to

21 Mr. Bergen.

22 Q So you were kind of equal on the

23 organizational chart?

24 A Correct.

25 Q How did you -- withdraw that. Did you

1 develop these goals of 50 parts per billion by
2 January 1, 1971, and 10 parts per billion by
3 September 1, 1971?

4 A I am the one that articulated it, but
5 I didn't do it in isolation. I checked with
6 the analytical chemists, the research people,
7 the production people and eventually
8 determined that these were reasonably
9 achievable, so I decided to go on record as
10 these are the targets. And that's where they
11 really came from.

12 Q You indicated in the third paragraph,
13 "Because of the seriousness of the PCB
14 problem, this level of performance cannot be
15 allowed to continue," referring to the level
16 identified in the previous paragraph. What
17 was the seriousness of the PCB problem that
18 you were referring to?

19 A PCBs in the environment, detection,
20 the presence of PCBs in the environment.

21 Q Why did you feel that was a serious
22 problem?

23 A As I indicated earlier, the man-made
24 chemical, it is out there. There are many
25 questions raised about what is it doing to the

1 environment? I perceived that as being
2 serious enough to control entry into the
3 environment.

4 (Papageorge Deposition Exhibit Number 16
5 marked for identification.)

6 Q (By Mr. Ricci) Mr. Papageorge, I'm
7 handing you a document that's been marked as
8 Exhibit 16 to your deposition, and ask you to
9 take a look at it.

10 A I have reviewed the document.

11 Q This is a December 15, 1970, report
12 from Mr. Krull; is that correct?

13 A Yes.

14 Q And you are shown as being copied on
15 this document?

16 A Yes.

17 Q That's in your capacity as the manager
18 of environmental control?

19 A Yes.

20 Q In the first paragraph under the
21 heading "Summary," there is a statement that,
22 "The losses to the sewers from Department 246
23 were measured at the beginning of 1970 to be
24 in excess of 300 pounds a day with
25 intermittent large spills of 2 to 4,000

1 pounds." Do you see that?

2 A I do.

3 Q Now, the Krummrich plant began

4 manufacturing PCBs in approximately 1938; is

5 that correct?

6 A That's approximately right, yes.

7 Q And they manufactured PCBs

8 continuously from '38 to '77?

9 A Yes.

10 Q Based upon the information in this

11 memo and whatever other information you have

12 developed in your years of work on PCBs, is

13 there any way for you to estimate what the

14 losses to the sewers were prior to the

15 beginning of 1970?

16 A Oh, no. There is no way.

17 Q Why is that?

18 A I can't do that.

19 Q Why is that?

20 A Primarily I don't know enough about

21 the equipment in use at the time and what

22 modifications transpired over the decades. I

23 do not know their procedures for handling

24 their leaks and spills, and I have no idea of

25 how serious any of those spills were that

1 occurred. It is like throwing a dart at a
2 dart board. I just could not come up with
3 anything that I believe in.

4 Q Could you say whether the releases to
5 the sewers were more or less prior to '70 than
6 they were in '70 when you started measuring?

7 A No, I can't.

8 Q You are aware, however, of changes to
9 the production process that were implemented
10 after -- in 1970 or after 1970 that reduced
11 the discharge of PCBs to the sewers?

12 A I'm aware of the programs. At this
13 time point in time I don't recall the
14 specifics, but I do know that there was a very
15 serious effort to do what was necessary to
16 reduce that loss.

17 Q Are you aware of any similar efforts
18 to reduce losses to the sewers prior to 1970?

19 A I'm not aware of any, no.

20 (Papageorge Deposition Exhibit Number 17
21 marked for identification.)

22 Q (By Mr. Ricci) Mr. Papageorge, I'm
23 handing you a document that's been marked as
24 Exhibit 17 to your deposition and ask you to
25 take a look at it.

1 A I have scanned the article.

2 Q This is another one of your monthly
3 reports prepared in conjunction with the PCB
4 control program?

5 A It is a copy of that, yes.

6 Q And this one is dated January 8, 1971.

7 Under the heading "Marketing," you discuss
8 efforts to educate Therminol FR users to
9 control leakage. What is Therminol FR?

10 A It is a heat transfer fluid which
11 contains one of the commercial PCB mixtures.

12 Q Now, yesterday you testified that
13 there were three Therminols denominated as
14 one, two and three?

15 A Yes.

16 Q And one was aroclor 1242, and two was
17 aroclor 1248, and three was aroclor 1254; is
18 that correct?

19 A Correct.

20 Q Now, this document refers to a
21 Therminol FR?

22 A I should have said FR-1, FR-2, FR-3.

23 Q Were you aware of a Therminol FR-0?

24 A I vaguely recall that, yes. It was
25 not a big item. Yes, there was an FR-0.

1 Q Do you know what aroclor that
2 Therminol included?

3 A I believe it was aroclor 1232.

4 Q The report discusses an effort to
5 educate Therminol users to control leakage.
6 Are you talking about in this report Therminol
7 users external to Monsanto, Monsanto's
8 customers?

9 A Well, yes. The marketing people would
10 be involved with customers.

11 Q Okay. I asked because in the next
12 paragraph you talk about consulting visits to
13 JFQ, which I assume is the Queeny plant, and
14 WGK which is the Krummrich plant?

15 A Yes.

16 Q But in the first paragraph you are
17 talking about communications to customers
18 outside of Monsanto?

19 A Correct.

20 Q What was the purpose of these efforts
21 to educate the users of Therminol?

22 A Well, of course the overall purpose
23 was to prevent the PCBs getting out to the
24 environment. The primary concern was one of
25 keeping the fire resistant characteristics of

1 these high temperature systems by continuing
2 to use PCBs.

3 It was perceived that if the systems
4 were not made leak proof, that use may
5 eventually not be tolerated, so it was the
6 hope then that if the system could truly be
7 described as totally enclosed, properly
8 maintained with no escape to the environment,
9 the safety feature could be kept with
10 continued use of the PCBs.

11 Q Were similar efforts made to educate
12 Pydraul users?

13 A Yes.

14 Q What did these education efforts
15 entail? Actual visits or sending them
16 literature or all of the above?

17 A All of the above.

18 Q Were efforts made for any education
19 efforts with respect to any of the Monsanto's
20 other PCB-containing products besides the
21 Therminols and the Pydrauls?

22 A Certainly with the electrical people.

23 Q So that would be the transformer
24 fluids and the capacitor fluids?

25 A Capacitor fluids.

1 Q Any others?

2 A That's all that existed at the time.

3 Everything else was withdrawn.

4 Q You had taken out the paints and the
5 carbonless paper and things by then?

6 A Yes.

7 Q Turn over to page 3 of this report,
8 please. At the bottom of the paragraph under
9 the heading "Public Relations," there is a
10 reference to Monsanto being criticised for
11 refusing to release production figures on PCB.
12 Do you recall that incident?

13 A I do.

14 Q Was it true that Monsanto refused to
15 release its production figures?

16 A Yes.

17 Q Why did Monsanto refuse to release
18 those figures?

19 A Well, releasing the figures was
20 perceived by Monsanto as divulging information
21 about its customers the customer really didn't
22 want divulged. And without the customer's
23 permission, Monsanto felt it was in no good
24 position to release those numbers.

25 Q Did you consider releasing the figures

1 without identifying the customers?

2 A We considered that, but the requests
3 we were getting, the requesters were not
4 satisfied with that broad type of information.

5 Q Did you in fact release production
6 figures without identifying the customers?

7 A Eventually we did, yes.

8 Q But they still weren't satisfied?

9 A Well, initially they weren't. In
10 fact, we sent a copy to a government
11 individual, and it was never opened. It was
12 returned to us. So we then publicized it
13 through the news media.

14 Q That was to a government agency?

15 A Yes.

16 Q Which agency, do you recall?

17 A Council of Environmental Quality.

18 Q That's a federal agency?

19 A Yes.

20 Q Were you at this time releasing
21 figures as to the amount of aroclors you were
22 discharging to waterways?

23 A No.

24 Q And why is that?

25 A By releasing I'm assuming you mean

1 that in a broad way, not to specific
2 regulatory people.

3 Q Okay. Let's talk about that. Did you
4 release them to specific regulatory people?

5 A Yes. We discussed that, yes.

6 Q But not -- you weren't doing press
7 releases or anything?

8 A That is correct.

9 Q Did you ever receive any inquiries
10 from the press regarding the amounts of
11 aroclors you were discharging to waterways?

12 A I didn't receive any personally, no.

13 Q You are not aware of any?

14 A I'm not aware of any.

15 Q Would you have released that
16 information if requested?

17 MR. NASSIF: Objection. It calls for
18 speculation on the part of the witness. You
19 are asking him what he would do back in 1971
20 or '70.

21 A I just at this point in time in
22 hindsight, I just don't know what I would have
23 done if that had been asked of me at that
24 time.

25 Q (By Mr. Ricci) Turn, if you would, to

1 page 8 of the report. Under the "Krummrich
2 Plant" heading, there is a discussion of PCB
3 levels in the sewers. And under paragraph
4 three there is a discussion of sewer samples
5 taken from the effluents of other industrial
6 plants. Do you see that?

7 A I do.

8 Q Were you aware of the sampling efforts
9 discussed in that paragraph?

10 A Yes. In fact, this is my report.

11 Q I meant to say prior to the time that
12 -- let me go back. Is this information you
13 would have received from Mr. Savage?

14 A Yes.

15 Q Were you aware that this sampling was
16 going on prior to the time that you received
17 it from Mr. Savage?

18 A Yes.

19 Q How did you become aware of that?

20 A Just the normal conversations I held
21 with individuals regarding what are you up to,
22 what's going on? And this is the feedback I
23 was getting.

24 Q What was your understanding as to why
25 this sampling was being done?

1 A This is a result of a follow up of
2 some samples that were taken. You may recall
3 yesterday we talked about the Mississippi
4 River, and we had some sediment samples and we
5 talked about going out in the boat and getting
6 some off shore and others and the presence of
7 PCBs in those samples. There was some
8 speculation as to where those PCBs were coming
9 from. And as a follow up on that, it was
10 decided to go and look at some other outfalls.

11 Q Did you understand these samples to be
12 from outfalls to the Mississippi River?

13 A No. I understood that these were
14 effluents that were leading to the village of
15 Sauget's treatment plant.

16 Q Do you know where the sampling points
17 for any of these samples identified in
18 paragraph three were?

19 A Not specifically, no.

20 Q Were you aware of a connection between
21 Dead Creek and the village sewer system?

22 MR. NASSIF: Objection. You asked him
23 that yesterday, and he gave you his entire
24 information about what he knew about Dead
25 Creek.

1 A I did not then know the connection.

2 Q (By Mr. Ricci) Does this document
3 refresh your recollection that there was in
4 fact a connection between Dead Creek and the
5 village sewer system?

6 A It does.

7 Q Do you remember anything more right
8 now than what you see in this memo?

9 A No, I don't.

10 Q The results of these samplings are in
11 concentrations of parts per billion; is that
12 correct?

13 A Yes.

14 Q Now, in order to convert these
15 sampling results into a pounds per day figure,
16 you would have to know the rate of flow from
17 these sampling points?

18 A That's an important piece of
19 information, but you also have to know how
20 does this concentration vary throughout the
21 day? Does it peak? Does it valley? This is
22 just a spot sample.

23 Q The report states that the only
24 significant quantity is the PCBs from the
25 village sewer. Do you see that?

1 A I do.

2 Q Since this is your report, I assume
3 that's a statement that you agreed with?

4 A Yes.

5 Q With respect to the -- let me withdraw
6 that. The report goes on to state, "This
7 amounts to about two to three pounds a day.
8 Probable source is aroclor trailer washes at
9 Rogers Terminal." Do you see that?

10 A I do.

11 Q How was the 2,110 parts per billion
12 figure for the village sewers converted to 2
13 to 3 pounds a day?

14 A Somebody had to have a flow of wastes
15 from the village to be able to make a
16 calculation based on an assumption that this
17 2,000 plus was constant throughout a 24-hour
18 period.

19 Q So that the flow would have to be
20 constant, and also the rate of PCBs would have
21 to be constant?

22 A To make that arithmetic. And this is
23 just a good guess.

24 Q Was it your understanding that the
25 aroclor trailer washes here are washes of

1 trailers used to haul aroclors for Monsanto?

2 A Yes. Well, I hesitated because I

3 don't know enough about the Rogers activities

4 to know whether they just hauled for Monsanto

5 or whether they hauled material for others.

6 Q But you knew they were hauling the

7 aroclors at least for Monsanto?

8 A At least, but I don't know if they

9 hauled transformer fluid from other companies,

10 for example.

11 Q Turn over to the next page, please.

12 Under the heading "Removal of Soluble PCBs

13 from Sewer Stream (reach 10 ppb)." Do you see

14 that?

15 A I see that.

16 Q There are a number of items listed,

17 numbers 1 through 4, as items that might

18 enable you to reach the 10 ppb level without

19 secondary or tertiary treatment. Do you see

20 that?

21 A I see that.

22 Q One of the items mentioned is to clean

23 all contaminated sewers and sewer boxes. What

24 did you understand that to mean?

25 A That implied to me that there was some

1 speculation regarding the presence of a layer
2 of heavy PCB in the bottoms of these systems
3 that until they are totally removed would
4 continue to contaminate the water that's
5 flowing through the systems.

6 Q How would the presence of that heavy
7 PCB layer on the bottom of the sewers
8 contribute to the levels in the water?

9 A Well, it served as a source of PCBs,
10 and it is transferred up to the limit of
11 solubility which would exceed that 10 parts
12 per billion. And in those situations where
13 you get some turbulence, you get some not only
14 solution of PCBs but a physical carrying.

15 Q What was the -- what would the
16 cleaning of the contaminated sewers and sewer
17 boxes entail?

18 A I find myself in a position where I
19 can't really tell you what they were thinking
20 at the time, but there are ways to handle
21 these things.

22 For example, you could go the route of
23 actually pumping out in these sewer boxes.
24 For example, sucking out the bottoms of these
25 and to go even from the -- you might want to

1 consider putting some sort of solvent in them
2 to get the last bit out. And in all of these
3 cases, whatever you withdraw from those
4 systems has to be carefully disposed of.

5 Q Do you recall any efforts by Monsanto
6 to actually get some cost estimates or
7 proposals of any kind as to what it would cost
8 you to clean out the sewers and sewer boxes?

9 A I just don't remember anything on
10 that.

11 Q Was it ever done?

12 A I recall some situations where they
13 did some clean outs. But I don't recall the
14 exact system or systems. There was something
15 done is all I remember.

16 Q Something done to clean out the
17 sewers?

18 A To clean out some sewers. I don't
19 know how extensive it was and the reason for
20 doing it.

21 Q At Krummrich?

22 A At Krummrich, yes.

23 Q But you don't know how extensive it
24 was?

25 A I do not.

1 Q Turn back to page 8 for a second, if
2 you would. I think you had testified earlier
3 that the problem, as you understood it, with
4 Rogers truck washing was that they were
5 discharging the wash water into Dead Creek.
6 This memo seems to suggest that Rogers truck
7 washings were going to the village sewers.
8 Does this refresh your recollection at all as
9 to where Rogers truck washings were going?

10 A I still am under the vivid impression
11 that this open area, the ditch kind of area,
12 the ground under the vehicles and so on with
13 the valve open and material drooling out of
14 it, that's the picture I have in my memory.
15 I just have a hard time associating it
16 with the village sewer system, but that's
17 because I don't know the connection between
18 that sewer system and the Rogers Terminal and
19 what he was doing at the terminal.

20 Q Do you agree that this report suggests
21 that at least some of Rogers truck washings
22 were going to the village sewers?

23 A That's what this report says or
24 implies.

25 Q But you just don't have any

1 recollection of it?

2 A I just personally don't know.

3 MR. RICCI: Why don't we take a break.

4 (Recess)

5 (Papageorge Deposition Exhibit Number 18

6 marked for identification.)

7 Q (By Mr. Ricci) Mr. Papageorge, I'm

8 showing you a document that's been marked as

9 Exhibit 18 to your deposition.

10 This is a document with Bates No. CER

11 011640, M5055.

12 A I have read the document.

13 Q This is a January 29, 1971, memo from

14 yourself to Mr. Savage; is that correct?

15 A That is correct.

16 Q In the second paragraph, there is a

17 statement, "It became increasingly obvious

18 that high levels -- referring to high levels

19 of PCBs in the sewers -- would continue

20 because of the PCBs trapped in the soil and in

21 the sewer systems. Cleanup of these sources

22 can be economically impractical."

23 Now, the cleanup of these sources that

24 you are referring to is the cleanup of soils

25 and sediments trapped in the sewers?

1 A Yes.

2 Q How did you -- on what did you base
3 your conclusion in January of 1971 that that
4 cleanup could be economically impractical?

5 A Well, I took the very conservative
6 approach and assumed the worse scenario, and
7 this is why I used the expression can be
8 instead of will be, because I was really
9 guessing what the worst case scenario would
10 be.

11 Q Did your worst case scenario entail
12 cleaning all the sewers in the plant or simply
13 the sewers in the production area or something
14 different?

15 A I had in mind cleaning up all the
16 sewers that sampling told us contained PCBs,
17 and I also had in mind a very large area of
18 soil digging up and replacing and so on around
19 much of the manufacturing facilities, not only
20 the PCBs but the users of the PCBs, the power
21 plant, the heat exchange units and on and on.
22 So I imagined that this would be a gigantic
23 task.

24 Q How were PCB contaminated soils
25 contributing to PCBs in the effluent?

1 A One could -- it was -- there was no
2 test made to demonstrate this. But one could
3 imagine that PCBs in soil would be tracked
4 onto, say, the pavement under the production
5 unit. And that pavement is hosed down, and it
6 gets into the sewer. That's just one little
7 example of the kind of thing. And trucks
8 churning it up and backing into the loading
9 docks and so on would be another source.

10 Q Was it originally your thinking that
11 the PCBs in the effluents could be controlled
12 simply by controlling the losses at the
13 production departments?

14 A That was my intent, yes. That was my
15 hope.

16 Q It appears from this memo that at
17 least by January of '71, you had come to the
18 conclusion that that controlling simply at the
19 production departments was not going to solve
20 the problem. Is that a fair statement?

21 A No. I'm describing control at the
22 production end. I'm also referring to cleanup
23 of systems and soils that were already
24 contaminated. And my last question really is
25 what can the plant do and what will it cost?

1 Now, this doesn't really say do it only for
2 cleaning up soils or cleaning out sewers but
3 also to include consideration of what can be
4 done back at the operating units to prevent
5 the material in the first place rather than
6 chase it after you have lost it.

7 Q You state in the third paragraph, "It
8 appears that the PCB contamination is so
9 widespread that all of the plant's effluent
10 must be treated." And are you talking about
11 the Anniston plant in that paragraph?

12 A Yes.

13 Q Did that situation exist at the
14 Krummrich plant as well?

15 A No. It wasn't as widespread at
16 Krummrich.

17 Q Wasn't as widespread at Krummrich?

18 A That's correct. It is a bigger plant,
19 too, Krummrich geographically with isolated
20 production units, whereas the Anniston plant
21 was more compact.

22 (Papageorge Deposition Exhibit Number 19
23 marked for identification.)

24 Q (By Mr. Ricci) Mr. Papageorge, I'm
25 showing you a document that's been marked as

1 Exhibit 19 to your deposition.

2 This is a document with Bates No. CER
3 011663 through 675, M5078 through M5090.

4 A I have scanned the exhibit.

5 Q This is another one of your monthly
6 reports relating to the PCB control program?

7 A Yes.

8 Q And this one is dated February 8,
9 1971?

10 A It is.

11 Q On the first page in the second
12 paragraph, there is a discussion of a
13 situation that arose with the State of
14 Florida. Do you recall the situation that's
15 discussed in this paragraph?

16 A I do.

17 Q What do you recall about it?

18 A This involved an air compressor
19 located on Monsanto's plant in Florida which
20 used a hydraulic fluid containing PCBs. A
21 leak -- and this particular compressor was
22 rather remotely located where employees were
23 not able to observe it constantly. A leak
24 developed, and the leaking hydraulic fluid
25 entered the drainage system and ended up in

1 the Escambia River estuary.

2 Q What was the state of -- how did the
3 State of Florida get involved?

4 A As I remember, the plant reported it.
5 Yes, they reported it. The area showed the
6 typical oily stains, and there was a rainbow
7 on the water near the plant, and the plant
8 reported it. That's how they involved the
9 state people.

10 Q Did the plant report it as an oil
11 spill or a PCB spill?

12 A The plant reported it as hydraulic
13 fluid spill. In 1969 the expression PCB
14 wasn't even known then.

15 Q Outside of Monsanto you mean?

16 A Not even Monsanto. We never used it.

17 Q Really?

18 A Aroclor is the term we used.

19 Q When did you start calling it PCBs?

20 A When the EPA picked it up, and I got
21 criticism from the electronics people.

22 Printed Circuit Board is their acronym.

23 Q I bet not anymore.

24 A No. They dropped it.

25 Q You state in the memo that the 2.5

1 parts per billion PCBs which were detected are
2 being extracted from sediment contaminated
3 prior to the summer of '69. Do you see that?

4 A Yes.

5 Q Was this spill prior to the summer of
6 '69?

7 A No. It was during the summer of --
8 well, yes. It was prior to the summer of '69,
9 yes.

10 Q When did the cleanup occur?

11 A Let's see. Shortly after that.

12 Q Shortly after the spill?

13 A Shortly after the spill, yes. It had
14 to happen within a month or two after that.

15 Q Do you know why this is being raised
16 in a report that's dated February of 1971?

17 A This is when the analysis was made of
18 those samples taken back then.

19 Q Okay. So in '69 you have the spill,
20 and you do some cleanup work and you retain
21 samples. Is that what happened?

22 A Yes.

23 Q And then in '71 you analyze the
24 samples?

25 A Yes.

1 Q Okay. So when you say the 2.5 ppb
2 PCBs which were detected are being extracted
3 from sediment contaminated prior to the summer
4 of '69, you are referring to being extracted
5 from the samples?

6 A Yes. Yes.

7 Q Not being extracted from sediments in
8 the environment?

9 A That is correct.

10 Q Did Monsanto do any cleanup of
11 sediments as a result of this spill?

12 A I remember there was some activity
13 with sediments. They had backhoes and
14 bulldozers, and they took it to landfills.

15 Q But that was before you knew about the
16 PCBs?

17 A True.

18 Q Turn, if you would, to page 12 of this
19 report. At the top under the heading
20 "Krummrich Plant, PCB Levels in Sewers," there
21 is a discussion of losses from the aroclor
22 department and losses from the treatment
23 plant. Do you see that?

24 A Yes, I do.

25 Q And the losses from the aroclor

1 department seem to be much less than the

2 losses from the treatment plant?

3 A I see that.

4 Q The treatment plant refers to the

5 village waste water treatment plant?

6 A Yes.

7 Q Did you have any explanation as to why

8 the losses at the treatment plant were greater

9 than the losses that you were showing from the

10 aroclor department?

11 A I don't know that you would call it an

12 explanation. It was really an assumption that

13 there must be other sources of PCBs entering

14 the village treatment plant.

15 Q Did you do any investigation to

16 determine what those other sources were?

17 A Well, I forget the date of that

18 previous exhibit where we had samples from

19 other effluents --

20 Q Right.

21 A -- from other industrial plants and

22 the village sewer itself. That's the kind of

23 study that was made to determine where the

24 PCBs might be coming from.

25 Q Did the sampling that you did of the

1 other industries in the village sewers account
2 for the difference that you were seeing
3 between what you were losing in the aroclor
4 department and what was being lost at the
5 village treatment plant?

6 A It accounted for the increase, but not
7 account pound for pound because of the time
8 the samples are taken.

9 Q The document that we have marked as
10 Exhibit 17 is the one that talks about the
11 samples from the other village industries.
12 And you state in this report, that is Exhibit
13 17, that the only significant quantity is the
14 PCBs from the village sewer. This amounts to
15 about 2 to 3 pounds a day. Probable source is
16 aroclor trailer washes at Rogers Terminal.

17 Was it your understanding then that
18 the difference, that the only significant
19 contributor to the difference between the
20 losses at the aroclor plant production
21 department and the losses at the village
22 treatment plant were these PCBs that you were
23 seeing from the village sewers that you had
24 attributed to Rogers?

25 A For this particular grouping of

1 samples at this point in time.

2 Q Were there other samples taken that
3 you are aware of of other village industries?

4 A Well, there were other samples taken,
5 as I recall, of these same kind effluents. I
6 don't remember the numbers today, but it
7 wasn't just a one-shot program. It was a
8 continuing program.

9 Q Did you ever determine that there were
10 other significant contributors of PCBs into
11 the village sewers besides Monsanto?

12 A Yes.

13 Q Who were they?

14 A Well, I would call all of these at one
15 time or other significant.

16 Q You didn't call them significant in
17 Exhibit 17, correct?

18 A That is true.

19 Q So what you are saying is you
20 recall --

21 MR. NASSIF: For the record, he called
22 one of them significant.

23 MR. RICCI: Right. I'm sorry. That
24 is correct.

25 Q (By Mr. Ricci) You recall other

1 sampling efforts with respect to other -- with
2 respect to these village industries?

3 A Yes.

4 Q And you recall that in those other
5 sampling efforts, you identified what you
6 would call significant contributions of PCBs
7 in the sewers?

8 A Yes, relative to each other.

9 Q How about relative to Monsanto?

10 A Yes.

11 Q And which industries did you identify
12 as contributing significant amounts of PCBs?

13 A Gosh, you are asking me to remember.
14 I don't recall the specifics. I think they
15 all at one time or other appeared to be the
16 top PCB contributor for that sampling period.
17 It varied.

18 Q Were any of these sampling efforts
19 reduced to writing or incorporated in any of
20 your reports?

21 A I don't recall specific reports, but I
22 do recall some in writing, yes, some of the
23 plant documents. I just can't remember the
24 specifics. It has been a quarter of a century
25 ago.

1 Q I understand that. Do you recall in
2 any of these other sampling efforts seeing
3 results approaching the levels identified to
4 the village in Exhibit 17 from any other
5 contributors to the sewers?

6 A Not quite that high, no. No. They
7 were not in the thousands.

8 Q In the hundreds?

9 A Hundreds, yes.

10 Q And do you recall efforts by Monsanto
11 to take the concentrations identified in those
12 sampling events and convert them to pounds per
13 day as was done in this memo?

14 A Yes. There were some of that, but we
15 recognize that it was at best a good guess is
16 what I describe it as.

17 Q Who would have been responsible for
18 taking these samples and reporting these
19 numbers up the chain?

20 A When you say responsible, it is hard
21 for me to draw the line. The plant manager is
22 ultimately responsible. He delegates these
23 duties to his team. Mr. Engman was the person
24 asked to kind of monitor and gather all that
25 data and report on it. There were, gosh,

1 several people in the plant involved with the
2 sampling, with the analyses, with the
3 calculations. No one person stands out in my
4 recollection.

5 Q Did Monsanto make any efforts to try
6 to reduce the PCB discharges to the sewers
7 from other village industries besides Rogers?

8 A No.

9 Q Why not?

10 A Well, in the industrial world, it is
11 virtually impossible for one company to move
12 in on another company and tell it how to run
13 its business. They won't even let you past
14 the plant gate guard. So Monsanto, of course,
15 was not in the regulatory business. It was
16 not in the cleanup business. All it could do
17 was inform the users of its products to keep
18 it out of the environment, and that's the
19 extent of it.

20 Q Were you aware that the village sewer
21 system was involved with an association of
22 industries that discharged into the system?

23 A Yes.

24 Q And you are familiar with the
25 association?

1 A Not totally familiar, but I'm aware of
2 the existence of such a group.

3 Q What's your understanding of what the
4 group consisted of and what it does?

5 A As I understood it, it consisted of
6 representatives of the major industry in the
7 area, and they were to collectively concur as
8 to what was going on in that treatment plant
9 to operate it properly. And that's the extent
10 of my knowledge.

11 Q And Monsanto was a member of the
12 association?

13 A Yes.

14 Q Do you know if any of these other
15 industries identified in Exhibit 17 were
16 members?

17 A I understood they were, yes.

18 Q Did Monsanto ever raise within the
19 association the problem of PCBs into the
20 sewers?

21 A I was informed they had, yes.

22 Q Did Monsanto ever, working through the
23 association, try to impress upon the other
24 industries in the village the importance of
25 not discharging PCBs to the village sewer

1 system?

2 A Yes.

3 Q Who did that from Monsanto?

4 A As best I recall, Mike Foresman was

5 the Monsanto individual assigned to be a

6 liaison with the treatment plant.

7 Q When did those efforts occur? Was it

8 during this time period, the early '70s?

9 A Yes. The '70s, yes.

10 Q Flip over to page 13 of the memo,

11 please. This is a continuation of the

12 discussion of the Krummrich plant, and in the

13 second full paragraph on that page begins,

14 "Both main plant sewers appear contaminated

15 with PCBs (30W and 24W)"?

16 A I see that.

17 Q What does 30W and 24W refer to?

18 A I interpret that as identifying the

19 particular sewer run or sewer line.

20 Q Do you understand this sentence to

21 mean that the PCB contamination in the sewers

22 at the Monsanto plant extended beyond the

23 confines of the aroclor production department?

24 A Yes.

25 Q And that contamination that you are

1 referring to is in sediments in the sewers?

2 A Some of it is sediment. Some of it is

3 just the ability of PCBs to cling to the

4 walls, the surfaces of the sewer itself.

5 Q The presence of the PCBs in the

6 sediments created a likelihood of PCBs in the

7 effluent even if the production department

8 totally discontinued discharging PCBs to the

9 sewer; is that true?

10 A For a while, yes.

11 Q And would the presence of PCBs on the

12 walls of the pipes of the sewer system also

13 create the likelihood of PCBs in the effluent

14 even if discharge from the PCB department

15 stopped?

16 A As long as the water reached that

17 surface, yes.

18 (Papageorge Deposition Exhibit Number 20

19 marked for identification.)

20 Q (By Mr. Ricci) Mr. Papageorge, I'm

21 showing you a document that's been marked as

22 Exhibit 20 to your deposition.

23 This is a document with Bates No. CER

24 011681 through 693, M5096 through M5108, and

25 ask you to take a look at it.

1 My questions, by the way, are only
2 going to refer to the portion of the document
3 that discusses the Krummrich plant.

4 A I have reviewed the portion referring
5 to the Krummrich plant.

6 Q On page 11, paragraph B, the second
7 paragraph, there is a discussion of a sample
8 taken from the village sewer and then it says,
9 "(Rogers Terminal) analyzed 0.033 percent
10 PCBs." Can you convert .033 percent into
11 parts per billion?

12 A Do you have a paper and pencil? It is
13 .033 over a hundred, and you add four more
14 zeros to the hundred to make a million, and
15 you shift your decimal point four places,
16 which gives you 330 parts per million.

17 Q Okay. So this is a different sampling
18 event than we saw in Exhibit 17 where it was
19 identified as 2,110 parts per billion?

20 A That's per billion. Yes. This is a
21 different sample.

22 Q And you state in this report -- by the
23 way, this document is another one of your
24 monthly reports on the PCB control program,
25 correct?

1 A Yes.

2 Q And this one is dated March 9, 1971?

3 A Yes.

4 Q You state in this report, "Apparently
5 Rogers had dumped a wash the day this sample
6 was taken." What do you mean by dumped a
7 wash?

8 A It refers to the cleanout effort where
9 the Rogers people flush out their tank with
10 water and any solvents and detergents they
11 choose to use, and then they in essence open
12 the valve and release that dirt and this water
13 so to speak.

14 Q Was it your understanding that this
15 was a wash of a trailer that had been used to
16 haul Monsanto aroclors?

17 A Had been used to wash some PCBs. I
18 don't know what the source of the PCBs was.

19 Q On the next page you say under
20 paragraph F, "All aroclor trailers, including
21 Rogers trailers, are being washed at WGK's rip
22 track."

23 How did Monsanto convince Rogers to
24 allow Rogers trailers to be washed at
25 Monsanto's rip track?

1 A Oh, I could speculate. I wasn't
2 involved.

3 Q You were not involved in that?

4 A Personally, no.

5 Q And nobody ever told you how that was
6 accomplished?

7 A No.

8 Q Do you know whether Monsanto in taking
9 the Rogers trailers -- let me start again.

10 The Rogers trailers that were washed at the
11 rip track, were they washed by Monsanto
12 personnel or by Rogers personnel?

13 A Monsanto.

14 Q In washing the trailer -- in washing
15 the Rogers trailers at the rip track, did
16 Monsanto wash trailers that were used to haul
17 other than Monsanto products?

18 A Yes, all of Rogers.

19 Q So basically all of Rogers trailers,
20 no matter who they hauled for, were washed at
21 the rip track?

22 A No. Just those tank trailers that
23 hauled Monsanto equipment or Monsanto
24 products.

25 Q Were washed at the rip track?

1 A At Monsanto rip track.

2 Q Did Monsanto charge Rogers for that?

3 A I don't know.

4 Q You state, "All aroclor trailers

5 including Rogers trailers." Did Monsanto have

6 its own trailers?

7 A No.

8 Q Were there other haulers that were

9 used to haul aroclors?

10 A Yes.

11 Q Do you know who any of those were?

12 A I remember only one. Waggoner.

13 Q Waggoner?

14 A Yes.

15 Q That is W-A-G-G-O-N-E-R?

16 A Yes.

17 Q Do you recall if it was Harold

18 Waggoner or Wilbur Waggoner?

19 A I don't know. I don't recall.

20 Q But in any event it was a Waggoner

21 that was used to haul Monsanto aroclors?

22 A That was my recollection, yes.

23 Q Did Waggoner also engage in trailer

24 washing?

25 A He must have, yes. I'm guessing that.

1 Q Okay. Do you know where Waggoner's
2 operations were located?

3 A No.

4 Q Do you know if he was in the Village
5 of Sauget?

6 A I associated him with the Illinois
7 side, but where in Illinois I don't know.

8 Q I may have asked you this yesterday,
9 and if I did I'm sure Joe will object, but I'm
10 going to ask you again. Did Waggoner haul for
11 the Queeny plant as far as you know?

12 A Yes.

13 Q I guess I didn't ask it yesterday.
14 Did Waggoner engage in any waste hauling for
15 either Queeny or Krummrich?

16 A Not to my recollection.

17 Q It was all product hauling?

18 A Yes.

19 Q Did the Queeny plant, when you were
20 working there at least, have any liquid waste
21 streams that were hauled off-site for
22 disposal?

23 A My answer is yes. I'm having
24 difficulty recalling just which ones they
25 were, but there were liquids hauled out, yes.

1 Q Were they hauled in tank trucks or
2 drums?

3 A Both.

4 Q But you don't recall Waggoner hauling
5 any of those liquids?

6 A I don't associate Waggoner with waste
7 materials.

8 Q How about Rogers?

9 A Rogers also I do not.

10 Q Did the Krummrich plant have any
11 liquid waste streams that were hauled off-site
12 for disposal?

13 A Yes.

14 Q What were those?

15 A I don't recall the specifics, but I do
16 know they hauled to their landfill.

17 Q Okay. They were hauled to the
18 Monsanto landfill?

19 A Yes. The same thing with the Queeny
20 wastes.

21 Q They were taken to the Monsanto
22 landfill?

23 A Yes.

24 Q Were there any other haulers of
25 aroclors that you recall besides Rogers and

1 Waggoner?

2 MR. NASSIF: Objection. His testimony
3 was he could only recall one other.

4 A I don't recall any others.

5 Q (By Mr. Ricci) Turn back to page 11
6 of Exhibit 20 again, please. I'll refer you
7 again to that second paragraph under the
8 heading B. Do you understand from that that
9 at least as of January 26, 1971, Monsanto had
10 not begun washing the Rogers trailers at the
11 rip track?

12 A That's my understanding, yes.

13 Q Do you know when that practice did
14 begin?

15 A Not exactly. It is reported in the
16 February activity report.

17 Q Do you understand from that that it
18 would have occurred then in February of '71?

19 A That's the only conclusion I can
20 arrive at, yes, sir.

21 Q What did Monsanto do with the wash
22 waters that were generated from the washing of
23 these trailers?

24 A At this point in time?

25 Q Yes.

1 A They were going to the village
2 treatment plant.

3 Q Did Monsanto do anything to remove the
4 PCBs from the water?

5 A Monsanto avoided introducing water
6 until they were certain they got all of the
7 free PCBs out of the unit, which reduced the
8 amount of PCBs that ended up in the water.

9 Q How did they -- I'm sorry. I didn't
10 mean to cut you off.

11 A It was a difference in the approach
12 taken in cleaning out the tank trailers.

13 Q What steps did Monsanto take to assure
14 that the insoluble PCBs taken out of these
15 trailers would not go to the sewers?

16 A Oh, they were drained out into drums.
17 And if they were salvageable, still fairly
18 clean, they would recycle it. If it was badly
19 contaminated, which didn't happen often, it
20 was sent to the landfill.

21 Q The material that you would take out
22 and drum would be the heel that we talked
23 about previously?

24 A Yes. Yes.

25 Q What about the material that would

1 adhere to the sides of the tanker?

2 A Well, that would not really be an

3 awful lot any longer once you allow the

4 material to drain on down, collect in this

5 heel, and then you open the valve and drain it

6 into a drum.

7 Q There would still be some residual

8 left on the side, but not a lot?

9 A There would be a film, yes.

10 Q And that film would be removed in the

11 washing process?

12 A Yes.

13 Q And that wash water was put into the

14 sewers?

15 A Yes.

16 Q And it was your understanding that

17 Rogers was just putting everything into the

18 sewers?

19 A Correct.

20 Q The aroclor that was identified as MCS

21 1016 was developed because it was more

22 biodegradable than 1242; is that correct?

23 A That is correct.

24 Q But they were both basically 42

25 percent chlorinated?

1 A Correct.

2 Q What was the difference between the
3 two, 1016 and 1242?

4 A The difference in what way?

5 Q They were both 42 percent chlorine yet
6 they were different. And I'm trying to figure
7 out how that occurs. Different isomer makeup?

8 A Yes, exactly. The 1016 was distilled
9 in such a way that it accentuated the presence
10 of the three chloro type isomer and removed
11 the four and five and removed the one and two.

12 Q Okay.

13 A So you end up with still 42 percent
14 chlorine, but it is a different mixture of
15 isomers.

16 Q It was the four and five that was
17 contributing to the lack of biodegradable?

18 A The four and five were leading to the
19 difficulty in biodegradation.

20 Q How much more biodegradable was the
21 1016 than the 1242?

22 A I don't know how to express that
23 except that the studies conducted in
24 Monsanto's laboratories indicated that the
25 material left over from the end of the study

1 starting with a 1016 was considerably reduced
2 from the material left over starting with the
3 1242 and ending up with a high concentration
4 of four and five types of isomers. I don't
5 recall the exact numbers today.

6 (Papageorge Deposition Exhibit Number 21
7 marked for identification.)

8 Q (By Mr. Ricci) Mr. Papageorge, let me
9 show you a document that's been marked as
10 Exhibit 21 to your deposition and ask you to
11 take a look at it.

12 This is a document with Bates No. CER
13 011764 through -- I'm sorry. Did I give you
14 the right one?

15 MR. NASSIF: Yes. That's 764.

16 Q (By Mr. Ricci) I have marked as
17 Exhibit 21 the document with Bates No. CER
18 011764 through 772, M5179 through 5187, but I
19 don't have any questions on that document.

20 MR. NASSIF: That's fine.

21 MR. RICCI: I will put it in the pile.

22 (Papageorge Deposition Exhibit Number 22
23 marked for identification.)

24 Q (By Mr. Ricci) Mr. Papageorge, I'm
25 showing you a document that's been marked as

1 Exhibit 22 to your deposition.

2 This is a document with Bates No. CER

3 011730 through 738, M5145 through M5153. And

4 my questions to you on this document will

5 relate primarily to discussions on pages 7 and

6 8. I'm sorry. 8 and 9.

7 A I have looked at pages 8 and 9.

8 Q Under the heading for the Anniston

9 plant, there is a breakdown of the losses, and

10 there is a line for excessive rain and a

11 concentration in pounds per day figure

12 assigned to that line. How were the losses

13 attributable to excessive rain determined?

14 A I don't recall the procedure they used

15 on that.

16 Q How would excessive rain have

17 contributed to additional losses of PCBs to

18 the sewers?

19 A You mentioned the sewer. This is

20 losses from the plant.

21 Q Okay.

22 A I can only associate the rain with the

23 flow to the Snow Creek which is perceived as a

24 loss from the plant. So when you ask me how

25 did they determine that, obviously a sample

1 was taken. Now, how they calculated it, I
2 just don't know in terms of what volume of
3 water was involved and so on, but this isn't
4 necessarily just a sewer loss. It is plant
5 loss.

6 Q Okay. Could excessive rain contribute
7 to increased sewer losses by increasing the
8 turbulence with which the water flowed through
9 the sewers?

10 A That depends on -- gee, I don't know
11 how much of the water resulting from a rain
12 would find its way into the plant sewer
13 system. I know some of it does, but I have no
14 idea how much. And because of that, I can't
15 visualize the degree of turbulence.

16 (Papageorge Deposition Exhibit Number 23
17 marked for identification.)

18 Q (By Mr. Ricci) Mr. Papageorge, I'm
19 showing you a document that's been marked as
20 Exhibit 23 to your deposition.

21 This is a document with Bates No. CER
22 015619 through 622, M4092 through M4095. And
23 I will ask you to take a look at it. And
24 while you are looking, I will be right back.

25 (Recess)

1 A I have scanned the exhibit.

2 Q (By Mr. Ricci) This is a September 9,
3 1971, memo from Mr. Savage to yourself, is
4 that correct?

5 A That is true.

6 Q And this is another one of these
7 reports from Mr. Savage that you then used to
8 prepare your reports?

9 A Correct.

10 Q In paragraph A on page 1, there is a
11 description of aroclor losses from the aroclor
12 department, and then in paragraph B there is a
13 description of total plant aroclor losses. Do
14 you see that?

15 A I do.

16 Q Where did Monsanto sample to determine
17 the losses from the aroclor department?

18 A I don't know personally.

19 Q Do you know where they sampled to
20 determine the loss, the total plant losses?

21 A Well, it is the sewer and entryway or
22 a part of the sewer system that leads to the
23 village treatment plant, but I don't know
24 exactly what point that is.

25 Q If I showed you a map of the sewer

1 system, do you think that might help you?

2 A Probably not.

3 Q Let me show you anyhow. On second

4 thought, I will spare you that.

5 Did you have an explanation as to the

6 difference between the losses from the aroclor

7 department and the total plant losses as

8 depicted in this memo?

9 A Well, obviously there are other

10 sources of PCBs throughout the plant. I

11 cannot tell you whether they are fresh sources

12 or sources that resulted from something that

13 happened in the past. And these would include

14 such things as heat transfer units that used

15 PCBs.

16 Q If you look at Roman Numeral II on

17 that page, there is a statement that, "All

18 Therminol units in the plant outside of the

19 operating department have been changed to

20 non-PCB fluids." So that would -- would that

21 eliminate heat transfer units as a source of

22 fresh losses to the sewers?

23 A Fresh losses, yes.

24 Q What would the past losses be, to your

25 understanding, that could contribute to

1 current results?

2 A It depends considerably on the
3 location of the unit, whether the past losses
4 occurred on concrete pavement or crushed rock,
5 rock or on clay soil, and how that PCB that
6 might be there is transferred. So it enters
7 into the sewer system either by hosing it down
8 or by rain storms or by any other disturbance,
9 by vehicles and so on.

10 Q Would residual contamination in sewers
11 and sewer sediments be another example of past
12 losses contributing to current results?

13 A That is a potential source, yes.

14 Q On page 2 of the memo that we have
15 marked as Exhibit 23, at the bottom under the
16 Anniston plant, there is a discussion of a
17 contact between Monsanto and representatives
18 of the EPA and the Alabama Water Improvement
19 Commission.

20 My question is is this another --
21 would you consider this one of the routine
22 contacts or would you consider this a
23 nonroutine contact?

24 A Well, the fact that this was requested
25 by the Washington D. C. Justice Department

1 would make it nonroutine in my opinion.

2 Q Do you know whether any requests were
3 made of the Krummrich plant similar to this
4 request that's documented here with respect to
5 the Anniston plant?

6 A I don't recall that, no.

7 Q Do you know why that was?

8 A I do not know.

9 (Papageorge Deposition Exhibit Number 24
10 marked for identification.)

11 Q (By Mr. Ricci) Mr. Papageorge, I'm
12 showing you a document that's been marked as
13 Exhibit 24 to your deposition. Ask you to
14 take a look at it.

15 This is a document with Bates No. CER
16 05616 through 618, M4089 through M4091.

17 A I have read the exhibit.

18 Q Under on the first -- let me stop
19 there for a second. This is an October 8,
20 1971, memo from Mr. Savage to yourself; is
21 that correct?

22 A That is correct.

23 Q Is this another example of Mr. Savage
24 reporting to you information that you then
25 incorporated into your reports?

1 A Yes.

2 Q On the first page of Exhibit 24 in the
3 second paragraph under heading "B," there is a
4 reference to sewer boxes being agitated with
5 air?

6 A I see that.

7 Q Mr. Savage's report indicates that the
8 purpose was to move any PCBs that may have
9 settled along the sewer route. How would air
10 agitation of the sewer box move along the
11 PCBs?

12 A It would approach forming an emulsion
13 with the water, and then the whole combination
14 of PCBs that had been stirred up and the water
15 would move forward in the sewer.

16 Q Why did you want to move them along?

17 A The intent was to avoid future
18 contamination of sewer water with PCBs. And
19 the intent here was to let's get once and for
20 all through the system if we can.

21 Q Was that intention actually
22 accomplished or realized in this effort?

23 A It helped. It didn't completely
24 remove the PCB from any water that still
25 traversed through there.

1 Q Did you see positive results from
2 these efforts in subsequent sampling efforts?

3 A I remember, yes, it improved.

4 (Papageorge Deposition Exhibit Number 25
5 marked for identification.)

6 Q (By Mr. Ricci) Mr. Papageorge, I have
7 handed you a document that's been marked as
8 Exhibit 25 to your deposition.

9 This is a document with Bates No. CER
10 012812 through 814, M6227 through 6229.

11 A I have reviewed the article.

12 Q This is a December 8, 1971, report
13 from Mr. Savage to yourself regarding the PCB
14 control program; is that correct?

15 A That is correct.

16 Q The first paragraph of this memo talks
17 about the emergence of a lower chlorinated
18 biphenyl in the sewer stream which is called
19 aroclor 1221. Why was the presence of this
20 aroclor deemed significant?

21 A As I recall, this is the first time
22 that the Krummrich plant in a long time that
23 the Krummrich plant had been asked to make
24 some of this material.

25 Q 1221?

1 A 1221, yes. And this is why they first
2 spotted it in their sampling.

3 Q It was your understanding that they
4 made 1221 historically but not recently?

5 A Correct.

6 Q 1221 was the aroclor that you
7 testified yesterday did have a component that
8 was unchlorinated biphenyl?

9 A Yes.

10 Q Is that the lowest chlorinated aroclor
11 that Monsanto ever manufactured?

12 A Yes. I would say so. I don't know if
13 they made others but never marketed them.

14 Q Under paragraph B on the first page,
15 towards the end there is a statement regarding
16 a known cross-flow between the main sewer. Do
17 you see that, the last sentence in paragraph
18 B?

19 A I do see that, yes.

20 Q What do you understand that cross-flow
21 to refer to?

22 A I can't answer that because I don't
23 know.

24 MR. RICCI: Why don't we break now.

25 (Lunch Recess)

1 (Papageorge Deposition Exhibit Number 26
2 marked for identification.)

3 Q (By Mr. Ricci) Mr. Papageorge, I have
4 just handed you a document that's been marked
5 as Exhibit 26 to your deposition. This is a
6 document with Bates No. CER 014761 through
7 767, M3513 through M3519.

8 A I have scanned through the exhibit.

9 Q This is an April 6, 1972, memo from Ed
10 Stewart to a Mr. A. E. Leisy?

11 A Correct.

12 Q And you are copied on this memo?

13 A Yes.

14 Q Did you receive a copy of this memo in
15 your capacity as the manager of environmental
16 control?

17 A I don't remember receiving it, but I
18 am listed as a recipient of a carbon copy.

19 Q Who was Mr. Stewart?

20 A He was an employee at Monsanto at the
21 W. G. Krummrich plant working in their
22 technical services department.

23 Q How about Mr. Leisy?

24 A Mr. Leisy at that time was the general
25 superintendent of manufacturing responsible

1 for the PCB department.

2 Q Turn, if you would, to the page with
3 Bates No. CER 014765. In the paragraph just
4 below the dates that are listed, there are
5 issues that I would like to raise with you.

6 First one there is a statement, "It is
7 believed the waste treatment influent
8 represents losses from the plant." Do you see
9 that?

10 A I do see it.

11 Q What do you understand that to mean?

12 A To me that means that Mr. Stewart made
13 an assumption that, for example, in December
14 '71, 12 pounds per day number represents PCBs
15 from Monsanto's plant.

16 Q Was Mr. Stewart actively involved in
17 the PCB control program?

18 A At this point in time he was, but he
19 had just recently joined the team.

20 Q Did he replace somebody else?

21 A No. No. The work load was such that
22 they needed more help, and he was one of a
23 couple three that were added to the team.

24 Q If other village industries were
25 contributing PCBs to the village sewers, then

1 that sentence that I just read you from this

2 memo would not be correct; is that true?

3 A That is true.

4 Q Do you have any reason to believe that

5 this statement is not correct?

6 A Yes. All the analytical data such as

7 those we saw previously indicated there were

8 PCBs in waste streams coming from other

9 industrial sites in that area.

10 Q Now, by the time of this memo,

11 Monsanto had taken from Rogers Cartage the

12 task of washing the aroclor trailers; is that

13 true?

14 A Yes.

15 Q So at least that source had been

16 eliminated, that source of other industry?

17 A That source of recently generated

18 losses, but does not account for any PCBs

19 still at the site where Rogers people did

20 their previous cleaning.

21 Q You are talking about residual soil or

22 sediment contamination?

23 A Yes.

24 Q There is a statement in that same

25 paragraph, "Calculations and recent plant

1 field data would indicate the major source of
2 PCB to the sewer from the aroclor department
3 to be organics present in the HCL off-gas."

4 Do you see that?

5 A I see that, yes.

6 Q How was the HCL off-gas getting to the
7 sewers at this point?

8 A There is a water scrubbing system
9 associated with that. And it is the water
10 from that I'm going to call the cleanup step
11 that was analyzed and traced back to this
12 source.

13 Q Based upon your testimony yesterday,
14 it was my understanding that the HCL off-gas
15 was actually diverted to other -- to the
16 production of muriatic acid at the Krummrich
17 plant. Do you recall that testimony?

18 A Yes.

19 Q This document seems to suggest that
20 HCL off-gas was going to the sewer.

21 A No. The intent there is to show that
22 that step in the process where the HCL off-gas
23 is recovered by a scrubbing system with its
24 auxiliary equipment to capture as much of the
25 gas as it can results in a waste stream that

1 has PCBs in it. It is not intended to show
2 the saleable muriatic acid in the source of
3 PCBs. It is the material that gets by that
4 system and is sewerred.

5 Q So it is sewerred after the scrubbing
6 process?

7 A Yes. That it is a residual gas still
8 left over.

9 Q And the scrubbing process that you are
10 referring to is the absorption of the HCL gas
11 into water?

12 A To make the acid.

13 Q To make the acid?

14 A That's correct.

15 Q Once that occurs there is residual gas
16 left over, and that's scrubbed, flushed to the
17 sewer?

18 A Yes. There is some gas still left
19 over and comes out of the top of that column,
20 and that's scrubbed again with a smaller
21 scrubber to get the last bit of any waste in
22 it, whether it be PCBs or whatever.

23 Q If there are PCBs in the off-gas after
24 it goes through the scrubbing process to
25 create the muriatic acid, wouldn't it also be

1 true that there were PCBs in the off-gas when
2 it was in that scrubbing process to create the
3 muriatic acid?

4 A Yes. And some of that is removed when
5 it goes through this condenser and demister
6 before it goes to the scrubber. So there are
7 at least two steps where it is captured.

8 Q Right. But you know it goes through
9 the condensers and the demister and then to
10 the scrubber for the production of muriatic
11 acid?

12 A Correct.

13 Q And at that point --

14 A There is still some more gas being
15 sucked up by the vacuum jets that go to
16 another smaller type scrubber.

17 Q And that last scrubber goes to the
18 sewer?

19 A Yes.

20 Q And according to this memo, what was
21 going to the sewer through that last scrubber
22 contained PCBs?

23 A Yes.

24 Q So that the condenser and the demister
25 were not a hundred percent efficient in

1 removing the PCBs?

2 A That is correct.

3 Q And if there were PCBs in the last

4 scrubber, then there must be PCBs in the

5 scrubber upstream from that that creates the

6 muriatic acid?

7 A Correct.

8 Q What mechanisms, if any, were in place

9 to prevent PCBs from getting into the muriatic

10 acid?

11 A Carbon treatment.

12 Q The muriatic acid went through carbon

13 treatment after it was created?

14 A The acid that was sold commercially or

15 used in some of the processes ran through a

16 carbon tower. The acid that was used in some

17 of the processes didn't have to be cleaned to

18 that degree, and it was used as is in the

19 Krummrich plant.

20 Q How was the carbon from that carbon

21 treatment system disposed of?

22 A Landfill.

23 Q When was that carbon treatment system

24 implemented?

25 A Very early days. I don't remember

1 what dates.

2 Q Prior to the PCB control program?

3 A Yes.

4 Q So prior to 1970?

5 A Oh, yes.

6 Q Was the purpose of that carbon

7 treatment to remove any organics from the

8 muriatic acid?

9 A Correct.

10 Q So Monsanto was aware prior to 1970

11 that the off-gas did contain organics?

12 A Organics, yes.

13 Q Now, if you look at the bottom of that

14 same page under paragraph B, there is a

15 statement, "HCL off-gas and air blow scrubbing

16 projects. Calculations and field sampling

17 would indicate losses of 14 to 31 pounds PCBs

18 per day can be present in the off-gas leaving

19 the department." Is that the off-gas that's

20 referred to there the same off-gas that we

21 have just been talking about?

22 A I believe it is, yes.

23 Q And he is estimating that to have the

24 potential to introduce between 14 and 31

25 pounds a day of PCBs into the sewer?

1 A He is.

2 Q And as of the time of this memo, there
3 is no control mechanism in place to deal with
4 that discharge to the sewer; is that correct?

5 A That is correct.

6 (Papageorge Deposition Exhibit Number 27
7 marked for identification.)

8 Q (By Mr. Ricci) Mr. Papageorge, I'm
9 handing you a document that's been marked as
10 Exhibit 27 to your deposition.

11 This is a document with Bates No. CER
12 014694 through 705, M3446 through 3457.

13 A I have reviewed the exhibit.

14 Q This exhibit are minutes of a meeting
15 that various Monsanto personnel had with the
16 EPA. And the minutes were prepared by
17 Mr. Hodges; is that correct?

18 A That is correct.

19 Q You are shown as having been present
20 at this meeting which apparently occurred on
21 April 13, 1972. Do you recall the meeting?

22 A Yes.

23 Q What were the circumstances that led
24 to this meeting?

25 A We had heard that the EPA was

1 seriously considering the establishment of a
2 level of PCBs in the waterways of the country
3 that they felt was appropriate and would cause
4 no effects in the environment.

5 What we had heard initially was that
6 the level that they were proposing would be if
7 not only difficult to achieve, but also
8 extremely difficult to measure reliably for
9 control purposes.

10 And we offered to sit down with their
11 EPA people and share our plant experience with
12 them. And we hoped that by so doing they
13 would perhaps get a better understanding of
14 what we felt was the real world. And that was
15 the purpose of setting up this meeting.

16 Q Attached to the minutes is the text of
17 a talk that Mr. Engman gave at the meeting?

18 A Yes, it is.

19 Q Do you recall Mr. Engman giving this
20 talk?

21 A Yes.

22 Q Did he basically just read what was
23 on --

24 A Yes.

25 Q -- this sheet?

1 A Yes.

2 Q If you refer over to the first page of
3 the text of the talk, paragraph number three,
4 there is a statement, "Five separate projects
5 were completed to the manufacturing equipment
6 and facilities themselves to bring all known
7 points of loss under tight control and to
8 reduce these losses to their absolute
9 practical minimum." Do you see that?

10 A I do.

11 Q Do you feel that statement is accurate
12 in light of the losses reflected in the
13 previous memo from the HCL off-gas?

14 A I don't see any inconsistency. The
15 previous exhibits we looked at, at least two
16 or three of them, there was a page in each
17 listing projects and their estimated dates of
18 completion and the objective of the projects.
19 You may remember those. This particular
20 paragraph is referring to those five or so
21 projects that were listed. Your reference
22 here to the off-gases was not among those
23 five. It is still an open issue that had to
24 be addressed.

25 Q Would you consider the aroclors going

1 to the sewer from the off-gas, as referenced
2 in the previous exhibit, a known point of
3 loss?

4 A True. True.

5 Q Was that known point of loss under
6 tight control as of the time that Mr. Engman
7 gave this talk to the EPA?

8 A That is true.

9 Q It was under control?

10 A No.

11 Q My question was was this known point
12 of loss under control at the time Mr. Engman
13 gave this talk?

14 A It was not under control.

15 Q Flipping over to the page with Bates
16 No. CER 014704.

17 A I have it.

18 Q There is a statement that begins,
19 "Although our in-plant sources of loss are
20 essentially eliminated or contained through
21 projects that have been completed," and it
22 goes on to say, "we are continuing to change
23 and modify our operation to further minimize
24 potential losses."

25 Was the loss of aroclors to the sewers

1 through the HCL off-gas as referenced in the
2 previous exhibit eliminated or contained as of
3 the time that Mr. Engman gave this talk?

4 A No. That's why the word essentially
5 eliminated and continuing to change, those
6 phrases indicate more work had to be done, and
7 modify our operations is another description
8 of what had to take place.

9 Q You have a specific recollection that
10 that's why the term essentially eliminated was
11 put in there?

12 A Not only for that, but for anything
13 else that might show up with further study.

14 Q I'd like to direct your attention to
15 the last paragraph on page three or on this
16 Bates CER 014704.

17 A I see it.

18 Q Mr. Engman refers there to the age of
19 the sewer system and the fact that the sewers
20 may have leaks. And then he says, "We are
21 confident that this situation contributes
22 significantly to the losses we see in the out-
23 flow to the river." Do you see that?

24 A I see that.

25 Q How would the conditions that

1 Mr. Engman is describing in that paragraph
2 contribute to losses in the out-flow to the
3 river?

4 A Well, the way I understood it is that
5 he is referring to the age of the operating
6 unit and its sewer system, and he felt
7 confident that that condition of the plant led
8 to losses that were noticeable in the river,
9 and that once we controlled the entry of
10 material into the system, that eventually any
11 PCB still in these sewers and in the sumps and
12 what have you would diminish with time.

13 Q What do you understand the statement,
14 "At no time do we expect that the sewers are
15 leak free," to mean?

16 A I read that to believe that
17 considering the age of the system, it was
18 unrealistic for Monsanto people to sit back
19 and feel totally assured that there are no
20 leaks.

21 Q By leaks, I guess that's what I'm
22 trying to focus on. What do you understand
23 the term leaks to mean, leaks into the sewer
24 system or out?

25 A Both directions. Flaws in the sewer

1 system leading to contaminated waters entering
2 or contaminated waters leaving at some other
3 point.

4 Q Were you aware of any contaminated
5 waters entering the sewers through leaks in
6 the sewer system?

7 A I have no personal knowledge of the
8 sources of the PCBs found in the sewer system,
9 no.

10 Q Did Monsanto ever investigate as part
11 of the aroclor control program whether there
12 were contaminated waters leaking into the
13 sewer system that weren't coming from your
14 operations?

15 A We certainly knew they were coming
16 from some of the uses like the hydraulic uses
17 in the compressor areas or the heat transfer
18 areas. We knew those sources.

19 Q But those were getting in through the
20 sewer system, correct? I mean those weren't
21 leaking in?

22 A I don't know that.

23 Q Okay. It is possible for a heat
24 transfer system to leak out on, let's say, a
25 crushed rock area, leak onto the crushed rock.

1 The water from rainfall or hosing down or what
2 have you picks up some of that and finds its
3 way down the plant and finds an opening in
4 some sewer. And the pressures are such that
5 the water enters the sewer rather than coming
6 out of it because the sewer is not fully
7 loaded, and that contaminated water could
8 enter a sewer system. That's a possible
9 scenario.

10 Q Right.

11 (Papageorge Deposition Exhibit Number 28
12 marked for identification.)

13 Q (By Mr. Ricci) Mr. Papageorge, I'm
14 handing you Exhibit 28 to your deposition.
15 This is a document with Bates No. CER 014773.
16 Wait a minute. I'm sorry.

17 MR. NASSIF: 770.

18 Q (By Mr. Ricci) Right, 770 through
19 780, M3522 through 3532.

20 My question with respect to this
21 document, by the way, is going to be with
22 respect to the discussion of samplers, if that
23 will expedite the review.

24 A I have read the pages on which the
25 topic of samplers is described.

1 Q This document is a May 3, 1972, memo
2 from Mr. Engman to yourself?

3 A It is.

4 Q What was the purpose of this report
5 from Mr. Engman?

6 A It is in response to my continual
7 questioning of where do we stand on all our
8 projects.

9 Q Did this report by Mr. Engman replace
10 the reports that you had been getting from
11 Mr. Savage?

12 A No. It supplemented.

13 Q Mr. Engman goes through a discussion
14 of various sampling devices that had been used
15 in the PCB control program. Were you familiar
16 with these sampling devices and techniques?

17 A At the time I was to a degree
18 familiar, not to the degree that Mr. Engman is
19 of course.

20 Q He talks about four different kinds of
21 samplers. He talks about a slow speed
22 sampler, a high speed sampler, a barrel
23 sampler and a flip-flop sampler. The first
24 sampler -- let me withdraw that.

25 It appears from the memo that prior to

1 the development of the flip-flop sampler,
2 which is referred to as the latest
3 development, it was the barrel sampler that
4 you were using to take your PCB samples?

5 A Just prior to the flip-flop?

6 Q Right.

7 A Yes.

8 Q Do you know how long the barrel
9 sampler had been in use --

10 A No, I don't.

11 Q -- prior to the time of this memo?

12 A I don't remember. And the barrel
13 sampler, as I understand it, was only at the
14 waste treatment plant because it required the
15 attention of an operator who was available.

16 Q Do you know if the high speed sampler
17 and the slow speed sampler were at times used
18 at the waste treatment plant?

19 A At times, yes. Before and after.

20 Q Before and after what?

21 A The barrel system.

22 Q Both the high and the slow speed
23 sampler were both used at the waste water
24 treatment plant after the barrel sampler?

25 A No. They had the slow and then they

1 went to high.

2 Q Right.

3 A And then they went to barrel.

4 Q Right.

5 A And then developed this flip-flop

6 which proved to be considered better than the

7 other three.

8 Q Right.

9 A And the flip-flop replaced all the

10 samplers.

11 Q So they never went back to the slow or

12 the high speed sampler after they went to the

13 flip-flop?

14 A Correct.

15 Q And they never went back to those slow

16 and high speed after they put in the barrel?

17 A Correct, the barrel at the treatment

18 plant.

19 Q At the treatment plant, that's what

20 I'm talking about. Was the barrel sampler in

21 service the longest amount of time as between

22 the barrel, the slow speed and the high speed?

23 A I don't know.

24 Q And you don't know the breakdown as to

25 when they went from the first to the second to

1 the third?

2 A Today I don't remember the dates, no.

3 Q If you look at page 4 of this memo,

4 Mr. Engman is taking the position that the

5 flip-flop sampler is superior to the barrel

6 sampler, correct?

7 A That's the conclusion he arrived at,

8 yes.

9 Q And as a result, he is going to start

10 using the flip-flop sampler as of May?

11 A Yes.

12 Q He says that the results, referring to

13 the results in the flip-flop sampler, will

14 tend to be higher than those in the past. Do

15 you see that?

16 A Yes.

17 Q Do you know why that was?

18 A Yes.

19 Q Why is that?

20 A The flip-flop is able to capture

21 sediment in the water which contains PCBs

22 also, so the analysis will reflect the

23 additional PCBs.

24 Q Were the slow speed sampler and the

25 high speed sampler able to capture sediments?

1 A No. Some of the sediment would settle
2 out and would not be in the sample.

3 Q So that would it be correct to say
4 that the results that had been obtained at the
5 waste water treatment plant prior to May of
6 1972 in fact understated the amount of PCBs in
7 the water because of this inability to sample
8 the sediments?

9 A Yes. Assuming there was sediment in
10 that to start with and how much sediment is
11 involved.

12 (Papageorge Deposition Exhibit Number 29
13 marked for identification.)

14 Q (By Mr. Ricci) Mr. Papageorge, I'm
15 handing you a document that's been marked as
16 Exhibit 29 to your deposition.

17 This is a document with Bates No. CER
18 012041 through 049, M5456 through M5464.

19 And the question I'm going to ask you
20 is basically just what you recall about the
21 project that's discussed in this document. So
22 with that question in mind, you can review it
23 as much as or little as you think you need to.

24 A I have scanned the exhibit.

25 Q Do you recall the project that's

1 addressed in this Exhibit 29?

2 A No. I'm having difficulty recalling.

3 Q The document or at least the first

4 page of the document appears to be a form.

5 Are you familiar with that form?

6 A Yes.

7 Q What is the form?

8 A This is the form used by the plant

9 technical services department to describe a

10 proposed project in an attempt really to get

11 comments regarding the appropriateness of what

12 was proposed and as a prerequisite to

13 preparing a formal appropriation request to go

14 ahead and complete the project.

15 Q Can you tell if this project was

16 designed to address the aroclor losses to the

17 sewers from the HCL off-gas?

18 A Yes. This was the -- not the HCL

19 off-gas. It is to prevent the entry into the

20 sewer system of muriatic acid which had been

21 recovered from the off-gases but which had not

22 been run through the carbon tower to remove

23 the organics. And this is the acid that is

24 used in the manufacture of chlorosulfonic acid

25 which is another product within the Krummrich

1 plant premises.

2 And as I read this, apparently there
3 were times when the system would be out of
4 control and that untreated muriatic acid would
5 find its way to the sewer. I personally don't
6 recall this specific activity.

7 Q So this would be another source of
8 PCBs to the sewers in addition to the HCL
9 off-gas that we were talking about a few
10 exhibits ago?

11 A Correct.

12 Q But you don't have any recollection of
13 this one?

14 A I don't recall this specific one, no.

15 Q Was it your understanding that in the
16 manufacture of chlorosulfonic acid one of the
17 raw materials was muriatic acid that was
18 created from the HCL off-gas from the aroclor
19 department?

20 A Yes.

21 Q The muriatic acid that was used to
22 manufacture chlorosulfonic acid did not go
23 through carbon treatment?

24 A The chlorosulfonic acid did.

25 Q Okay. So you didn't have to put the

1 muriatic acid through it because the
2 chlorosulfonic acid would go through it?

3 A It would be treated anyway, so you did
4 it at one time.

5 (Papageorge Deposition Exhibit Number 30
6 marked for identification.)

7 Q (By Mr. Ricci) Mr. Papageorge, this
8 is a document that we have marked as Exhibit
9 30 to your deposition.

10 It has Bates No. CER 013898 through
11 911, M2859 through M2872.

12 A I have scanned the document.

13 Q Exhibit 30 is a December 11, 1972,
14 memo from Mr. Stewart to a number of people
15 including yourself; is that correct?

16 A That is correct.

17 Q Attached to the cover sheet of Exhibit
18 30 is something that Mr. Stewart refers to as
19 an in-hand status report. Do you see that?

20 A Yes.

21 Q Are you familiar with that term
22 in-hand status report?

23 A I at this time do not recall the
24 report itself was referred to as in-hand,
25 although that expression in-hand is used to

1 describe the awareness of PCB in certain
2 streams.

3 Q The report itself begins on the page
4 with Bates No. CER 013900; is that correct?

5 A That is correct.

6 Q What was the purpose of that status
7 report?

8 A To let anyone that might be interested
9 know what the plant, the Krummrich plant, had
10 done in the area of keeping PCBs out of the
11 environment.

12 Q Mr. Stewart states that the report was
13 prepared, "To have a document in-hand for the
14 federal authorities in the event we are asked
15 for such a document." Do you agree that that
16 was one of the purposes of this document?

17 A That's one of the purposes, yes.

18 Q Flip over to the page with Bates No.
19 CER 013902.

20 A I have it.

21 Q Directing your attention to the second
22 paragraph, just take a moment to read that
23 paragraph.

24 A I have read it.

25 Q That paragraph has an inaccuracy in

1 it, doesn't it?

2 A It does.

3 Q What is the inaccuracy?

4 A This inclusion of the 1016 number

5 along with the 1200 series does lead to

6 confusion regarding the lower the grade

7 number, the more degradable.

8 Q And also the lower the grade number,

9 the less chlorinated?

10 A Yes.

11 Q Was this document ever provided to

12 federal authorities?

13 A I don't recall it ever being approved,

14 but -- I just don't remember it ever being

15 approved or issued to anybody -- employees,

16 customers, neighbors or government. I just

17 don't remember that.

18 Q Approved by whom?

19 A Well, you will note by the cover memo

20 that final approval was requested from me.

21 Q Okay.

22 A In order for me to get final approval,

23 I had to run this by others in Monsanto. I

24 don't recall final approval given to this, but

25 my memory may have failed me. I don't know.

1 I just don't remember this.

2 Q In the first page of the cover memo
3 there is a reference to deleting the word
4 knowing in any reference to types of PCB
5 losses. Do you see that?

6 A Yes.

7 Q What was that about?

8 A You note one of the exhibits described
9 a meeting with the EPA.

10 Q Right.

11 A Where a Dr. John Buckley in EPA
12 participated actively in defining for us what
13 EPA meant by knowing quantities of PCBs, and
14 he made an attempt to describe that for us.
15 And we decided that industry didn't quite
16 understand the EPA's use of that expression
17 knowing. And we took Buckley's explanation
18 and came up with the in-hand implying this is
19 what we know is in this stream, because
20 Buckley's explanation was a little bit
21 confusing to us.

22 Q Was the knowing discharge standard
23 ever adopted?

24 A Well, it depended on your
25 understanding of the use of the word knowing.

1 If by knowing you mean you have taken a sample
2 and you have analyzed it and you have a number
3 you are looking at, that is crystal clear.

4 But then there are other
5 interpretations of that expression that
6 implied you could assume without an analysis
7 that that particular stream had PCBs in it and
8 still used the word knowing, so this is what
9 created some of this confusion. And
10 Mr. Stewart chose to use the in-hand, meaning
11 in his thinking we know for sure. Our
12 instrument tells us this is the amount of
13 material in the sample.

14 MR. NASSIF: Did you get your question
15 answered, Rich?

16 MR. RICCI: I don't think so, but I
17 don't think I'm that interested in it.

18 MR. NASSIF: All right.

19 A I'm sorry I didn't make it clear.

20 Q (By Mr. Ricci) No. I think it is an
21 inherently unclear standard, and we could
22 probably spend 20 minutes trying to figure it
23 out, but it is not really that germane.
24 (Papageorge Deposition Exhibit Number 31
25 marked for identification.)

1 Q (By Mr. Ricci) Mr. Papageorge, I'm
2 handing you a document that's been marked as
3 Exhibit 31 to your deposition.

4 This document has Bates No. CER 015432
5 and 433, M3905 and M3906. And I would ask you
6 to take a look at it.

7 A I have read the exhibit.

8 Q This is a September 24, 1973, memo
9 from Mr. Hodges to Mr. Heisler and Mr. Hippe?

10 A Yes.

11 Q And you are copied on this memo?

12 A Yes.

13 Q The memo talks about PCBs being
14 included on a list of toxic pollutants
15 published by the USEPA; is that correct?

16 A That is correct.

17 Q What was your understanding of the
18 significance of PCBs being included on that
19 list, if any?

20 A Listing a chemical in that group of
21 chemicals would then make it eligible for the
22 imposing of limitations on the amount that
23 could be present. That was the purpose of
24 that list.

25 Q Mr. Hodges refers in the next to the

1 last paragraph on the first page to background

2 losses. Do you see that?

3 A Yes.

4 Q What did you understand that term

5 background losses to mean?

6 A That means the amount of material

7 found in samples over and above the amount

8 that could be accounted for in the Krummrich

9 plant's discharges.

10 Q In the last paragraph on the first

11 page he urges the plant to commence a program

12 of monitoring to determine sources of the

13 background loss. Was any such program

14 implemented?

15 A Yes.

16 Q What did that program entail?

17 A It was really a continuation of that

18 sampling program, the results of which we saw

19 in earlier exhibits, at the various points in

20 the sewer system leading to the village

21 treatment plant.

22 Q Various points of the Monsanto sewer

23 system?

24 A No. The village treatment sewer

25 system, the village, the neighboring

1 industries including Monsanto.

2 Q So start again. The program that you
3 just described was continued in response to
4 this memo?

5 A Yes. There are two parts to this
6 program. One is the outside sampling. By
7 outside I mean external of the Krummrich
8 plant.

9 Q Right.

10 A And then there is the program through
11 control losses inside the plant, and the
12 intent there is to more clearly define where
13 these PCBs are all coming from.

14 Q Mr. Hodges states here that he is
15 urging the plant to commence a program of
16 monitoring to determine sources of the
17 background loss. Is it your understanding
18 that such a program was already underway?

19 A Yes.

20 Q Do you know why Mr. Hodges was urging
21 the plant to commence such a program then?

22 A No, I don't.

23 (Papageorge Deposition Exhibit Number 32
24 marked for identification.)

25 Q (By Mr. Ricci) Mr. Papageorge, let me

1 show you Exhibit 32 to your deposition, which
2 is a document with Bates No. CER 013838 and
3 839, M2799 and M2800. Ask you to take a look
4 at it.

5 A I have read the exhibit.

6 Q This is an October 16, 1973, memo from
7 Mr. Buckley to Mr. Leisy. Who was
8 Mr. Buckley?

9 A Mr. Buckley was a member of the
10 environmental team at the Krummrich plant.

11 Q And you are copied on this memo?

12 A I am.

13 Q In the first paragraph he indicates
14 that this memo is in part in reference to Paul
15 Hodges' memo of 9/24/73. Do you see that?

16 A I do.

17 Q And that's the document that we just
18 talked about as Exhibit 31, correct?

19 A Correct.

20 Q He presents a plan that's in four
21 paragraphs on the first page of that memo. Do
22 you know why there is no mention in this plan
23 of sampling the effluent from the other
24 industries in the village?

25 A I do not.

1 (Papageorge Deposition Exhibit Number 33
2 marked for identification.)

3 Q (By Mr. Ricci) Mr. Papageorge, let me
4 show you Exhibit 33 to your deposition.

5 This is a document with Bates No. CER
6 014855 through 858, M3607 through M3610. Ask
7 you to take a look at it.

8 A I have reviewed the article.

9 Q This is a January 4, 1974, memo from
10 Mr. Buckley to Mr. Savage regarding the PCB
11 environmental control program. And you are
12 copied on this memo, correct?

13 A Correct.

14 Q And the memo at least in part reports
15 PCB levels in the sewers, correct?

16 A Yes.

17 Q Including the waste treatment plant
18 influent?

19 A Yes.

20 Q The memo doesn't contain any data on
21 PCB losses from other industries in the
22 village, does it?

23 A I don't see any reference to others,
24 no.

25 Q If such information was available for

1 the time period covered by this memo, would it
2 have been appropriate for Mr. Buckley to
3 include it in this memo?

4 MR. NASSIF: Object. Calls for
5 speculation.

6 A I don't know what Mr. Buckley was
7 asked to do, so I can't -- I don't know.

8 Q (By Mr. Ricci) This memo is
9 identified as having a subject, "Status of the
10 PCB Environmental Control Program," right?

11 A Correct.

12 Q You were the director of environmental
13 control at this point, correct?

14 A Manager of environmental control.

15 Q Manager. I'm sorry. As manager of
16 environmental control, would you have been
17 interested in seeing data regarding PCB
18 discharges from other village industries for
19 that time period if it were available?

20 A Certainly.

21 Q Did you ever ask Mr. Buckley or
22 Mr. Savage why that information wasn't
23 included in this memo?

24 A I don't recall that. At this point in
25 time, I just don't remember how that other

1 information was made available to me.

2 Q Do you recall receiving any regular
3 periodic reports that set forth PCBs being
4 discharged to the village sewer from other
5 industries?

6 A Not periodic, not regular.

7 Q Do you remember seeing any written
8 reports other than the two that we have
9 already looked at today?

10 A Oh, there are others.

11 MR. RICCI: Joe, in the documents that
12 we have reviewed, we have only seen two
13 reports that talk about samples of PCB from
14 other village industries, so I'm going to make
15 a request on the record right now that any
16 additional documents that give that kind of
17 information be produced. And I will follow it
18 up in writing.

19 MR. NASSIF: Fine. We produced to you
20 what we had.

21 Q (By Mr. Ricci) Under Roman Numeral
22 III on the first page of Exhibit 33, paragraph
23 one talks about HCL off-gas?

24 A Yes.

25 Q It says the sewerage valve opened

1 about 18 times through 12/30. What does that

2 mean?

3 A I don't remember that. I don't

4 remember the significance of that.

5 Q Do you remember the sewerage valve?

6 Does that ring a bell?

7 A No, it doesn't.

8 Q Flip over to the second page of this

9 Exhibit 33, please.

10 A I have it.

11 Q Under the heading "Investigations,"

12 there is a statement that it is reasonable to

13 assume that the most representative sample is

14 obtained at the waste treatment plant influent

15 point where there is the greatest turbulence

16 at the sampling point. Do you see that?

17 A I see that.

18 Q What is meant by the most

19 representative sample? Most representative of

20 what?

21 A In the opinion of the author's, it

22 would be most representative of the waste

23 stream leaving the Krummrich plant going to

24 the municipal treatment plant.

25 Q So according to the author, they are

1 saying the place where you get the most
2 representative sample of the Krummrich plant
3 effluent is the influent point of the waste
4 water treatment plant?

5 A No. The influent of the Krummrich
6 plant's waste, not the composit from the
7 village and neighboring industry.

8 Q You understand this reference to the
9 waste treatment plant influent to be the point
10 whereby the Krummrich plant waste stream
11 enters the village sewer system?

12 A Yes, the composit from the Krummrich
13 plant, which is close to the producing unit,
14 as well as all these other streams.

15 Q Was there a single point where the
16 Krummrich plant effluent from all areas of the
17 Krummrich plant entered the village sewer
18 system?

19 A Yes.

20 Q And were there any waste streams from
21 any other industries that were in the line at
22 that point?

23 A Downstream.

24 Q Not upstream?

25 A Not upstream.

1 Q So there was a single point entering
2 the village sewer system that brought together
3 all of the waste streams from the Krummrich
4 plant?

5 A Correct.

6 Q Where was that point?

7 A Gosh, I don't remember physically, no.

8 Q Why would the turbulence of the
9 sampling point contribute to its value as a
10 representative sampling point?

11 A The turbulence was more apt to pick up
12 the PCBs associated with sediments and the
13 free PCBs if there were any, what we talked
14 about earlier, this mixture approaching an
15 emulsion, that kind of thing.

16 MR. RICCI: Why don't we take a break
17 now.

18 (Recess)

19 (Papageorge Deposition Exhibit Number 34
20 marked for identification.)

21 Q (By Mr. Ricci) Mr. Papageorge, let me
22 show you a document that's been marked as
23 Exhibit 34 to your deposition.

24 This is a document with Bates No. CER
25 015519 through 521, M3993 through M3994.

1 My only question is on the first page
2 of the document. This is a February 4, 1974,
3 memo from Mr. Buckley to Mr. Savage that you
4 are copied on, correct?

5 A Correct.

6 Q In the first section he describes PCB
7 levels in the sewers. Do you see that?

8 A I do.

9 Q And the document indicates a much
10 lower level of loss from the aroclor
11 department than it does with the losses
12 measured at the waste treatment influent. Is
13 that true?

14 A That is true.

15 Q And the reference to the waste
16 treatment influent in this document, do you
17 understand that to be the influent point of
18 the village treatment plant?

19 A It is the influent from the Krummrich
20 plant to the village treatment plant.

21 Q To the village sewer system?

22 A Yes.

23 Q Not to the village treatment plant?

24 A Correct. Eventually it gets there,
25 yes.

1 Q Just bear with me for one second.

2 Mr. Papageorge, let me refer you back for a

3 moment to Exhibit 28. This was the exhibit

4 that we had looked at with respect to the

5 issue of samplers?

6 A Yes.

7 Q And I believe you testified that the

8 barrel sampler was installed at the influent

9 point of the waste water, the village waste

10 water treatment plant, correct?

11 A That's my understanding.

12 Q And that's the influent of all flows

13 from the village into the waste water

14 treatment plant, correct?

15 A That's my understanding, yes.

16 Q And the reason it was installed there

17 is because they had an operator, correct?

18 A Correct.

19 Q And this memo that is Exhibit 28

20 indicates that the flip-flop sampler is going

21 to replace the barrel sampler, correct?

22 A Yes.

23 Q And it is going to replace the barrel

24 sampler at that same influent point to the

25 waste water treatment plant?

1 A That is true, yes. But it is also
2 supposed to replace the samplers at other
3 points which were not barrel samplers.

4 Q Okay. And from that point forward,
5 samples taken from the waste water treatment
6 plant influent point are going to be with the
7 flip-flop sampler?

8 A Correct.

9 Q Because that sampler was felt to
10 provide more accurate results than the barrel
11 sampler?

12 A Correct.

13 MR. NASSIF: Objection. Asked and
14 answered.

15 Q (By Mr. Ricci) If you look at Exhibit
16 33, it is my understanding of your testimony
17 that where it gives results of the waste
18 treatment influent, that's not a sample taken
19 at the point of the influent into the waste
20 water treatment plant?

21 A That was my understanding.

22 Q Do you see anything in this memo
23 giving sampling results for the point of the
24 influent into the waste water treatment plant?

25 A I don't.

1 Q In the document that we have marked as
2 Exhibit 34, which is the February 4, 1974,
3 memo from Mr. Buckley to Mr. Savage, there is
4 again a statement of sampling at waste
5 treatment influent. Do you see that?

6 A I do.

7 Q And, again, it is your understanding
8 that this is not the sampling point of the
9 influent into the waste water treatment plant?

10 A That's my understanding.

11 Q Do you see any sampling results in
12 this memo from the influent point to the waste
13 water treatment plant?

14 A No, I don't.

15 Q Was it your understanding that once
16 the flip-flop sampler was installed at the
17 influent point of the waste water treatment
18 plant, they were going to continue to take
19 samples with it?

20 A Certainly.

21 Q And they were going to continue to
22 analyze those samples for PCBs?

23 A Yes.

24 Q Do you know of any reason why those
25 samples wouldn't be included in either the

1 memo that we have marked as Exhibit 34 or the
2 memo that we have marked as Exhibit 33?

3 A I believe we touched on that earlier.

4 I was asked the question why Mr. Buckley
5 didn't include samples other than Monsanto
6 samples, and I indicated I don't know why
7 because I didn't know what instructions he was
8 given as to what to address as part of his job
9 as compared to someone else's assignment.

10 Q As we look at Exhibit 33 and Exhibit
11 34 in conjunction with Exhibit 28, does that
12 refresh your recollection at all that perhaps
13 the references in 33 and 34 to the waste
14 treatment influent sampling point is in fact
15 the influent point to the waste water
16 treatment plant?

17 A Not necessarily.

18 Q No?

19 A It doesn't.

20 (Papageorge Deposition Exhibit Number 35
21 marked for identification.)

22 Q (By Mr. Ricci) Mr. Papageorge, let me
23 show you a document that's been marked as
24 Exhibit 35 to your deposition.

25 This is a document with Bates No. CER

1 013748 through 766, M2709 through M2727.

2 A I have scanned the exhibit.

3 Q This is a February 21, 1974, memo from

4 Mr. Stewart to Mr. Heisler. Who is

5 Mr. Heisler?

6 A At that time Mr. Heisler was the

7 general superintendent in charge of the

8 environmental matters at the Krummrich plant.

9 Q Was that a new position?

10 A Yes.

11 Q And you were copied on this document;

12 isn't that correct?

13 A That is correct.

14 Q Now, if you flip over to the page with

15 Bates No. CER 013752, there is what's

16 described on the previous page as a simplified

17 drawing of the sewer system where PCB

18 contamination is possible at present. Do you

19 see that?

20 A I see that.

21 Q And the description is on the page

22 before that. I don't know if you noticed that

23 when you scanned the document. On this

24 sketch, samplers are indicated with an S in a

25 circle. Do you see that?

1 A I do.

2 Q Are any of these same samplers
3 depicted on this sketch the sampler that you
4 testified sampled the Krummrich plant effluent
5 as it entered the village sewer system but
6 that did not include effluent from other
7 industries in the village?

8 A As I look at this diagram, I see a
9 sketch that shows the direction of flow of
10 streams from the producing unit and from the
11 incinerator and so on, the separate streams.

12 What I have difficulty understanding
13 is what some of these arrows pointing to those
14 flow lines are referring to, but as I read
15 this and tie it into the previous exhibits
16 which inform us of the PCBs in pounds per day
17 that were determined, I see the three S's that
18 I have in mind. S is representing the
19 location of a sampler. And I don't know how
20 to describe this for the record, but there is
21 two samplers showing the material from the
22 producing unit.

23 Q Right.

24 A And there is a sampler that comes off
25 the line that's tied into the incinerator.

1 Q Right.

2 A And I see a sampler just before this
3 rectangle representing the Sauget waste
4 treatment system as being a combination of
5 those two from the plant.

6 Q Uh-huh.

7 A I do not see anything on the sketch
8 that shows me flows from neighboring
9 industries or from the village itself.

10 Q Of the sampling points that are
11 depicted on this sketch, the only sampling
12 point that would sample all of the effluent
13 from the Krummrich plant is the one -- let me
14 rephrase that.

15 On the sketch, the only sampling point
16 upstream from the block that's marked Sauget
17 waste treatment that would sample all of the
18 effluent from the Krummrich plant is the
19 sampling point just above the box that's
20 marked Sauget waste treatment; is that
21 correct?

22 MR. NASSIF: Object. I will object to
23 the form of the question.

24 MR. RICCI: Can you explain it?

25 MR. NASSIF: Yes. There were other

1 discharges from the Krummrich plant that
2 didn't go to the south that aren't indicated
3 on this exhibit, that went north and to
4 Route 3 in a different direction that there
5 has been testimony in this case about.

6 MR. RICCI: Could you read the
7 question back.

8 (The requested portion of the
9 record read by the reporter)

10 Q (By Mr. Ricci) Can you answer the
11 question?

12 A I will try. I don't see in this
13 diagram anything that tells me that the waste
14 stream from the rest of the Krummrich plant
15 independent of the PCB-related activities are
16 shown.

17 Q Okay. Let me try it a different way.
18 There are four sampling points depicted on
19 this map, correct?

20 A Yes.

21 Q Okay. There is a sampling point just
22 to the right of Department 246?

23 A Correct.

24 Q That sample point is not accepting all
25 of the effluent from the Krummrich plant

1 that's depicted on this map, correct?

2 A That is the way I read it, yes.

3 Q There is a sampling point on the solid

4 line just to the left of the block marked

5 repair track; is that correct?

6 A I see that, yes.

7 Q Okay. That sampling point does not

8 accept effluent from all of the lines that are

9 depicted on this map, correct?

10 A That is correct.

11 Q Then there is a sampling point down

12 from there on the line that leads out of the

13 incinerator and then down towards the bottom

14 of the page, and that sampling point also does

15 not accept all of the effluent from all the

16 lines that are depicted on this map, correct?

17 A Correct.

18 Q Now, there is a sampling point on the

19 line that goes into the Sauget waste treatment

20 plant, correct?

21 A I see that, yes.

22 Q That sampling point samples all of the

23 flows that pass through the other three

24 sampling points that we just described, right?

25 A That's what this diagram indicates,

1 yes.

2 Q And then from that sampling point, the
3 line seems to indicate that the flow goes into
4 this block marked Sauget waste treatment. Do
5 you know what that Sauget waste treatment
6 indicates?

7 A Well, I interpret that as indicating
8 the village treatment facility.

9 Q The treatment plant?

10 A Plant.

11 Q Is it your understanding then that
12 this sampling point just above the Sauget
13 waste treatment plant is the one where the
14 flip-flop sampler was that was described in
15 the previous exhibit that we discussed?

16 A That's one of the places I understand.
17 I understand that that flip-flop was used.

18 Q In each of those three cases?

19 A All of these locations in the later
20 dates, the latest samples.

21 Q Right. There is no other sampling
22 point depicted on this map upstream from the
23 waste water treatment plant that accepts flow
24 that passes through the other three sampling
25 points; is that correct? Did you understand

1 the question?

2 A I think I do. I don't see any

3 indication, that's true.

4 MR. NASSIF: For the record, counsel,

5 you said there were four sampling points on

6 the map. There's actually five.

7 MR. RICCI: Right. One downstream

8 from the waste water stream plant which I was

9 not asking about.

10 (Papageorge Deposition Exhibit Number 36

11 marked for identification.)

12 Q (By Mr. Ricci) Mr. Papageorge, let me

13 hand you a document that's been marked as

14 Exhibit 36 to your deposition.

15 This is a document with Bates No. CER

16 014830 through 842, M3582 through M3594.

17 A I have scanned the document.

18 Q This is a December 1, 1975, letter

19 from a Vincent DeCarlo of the USEPA to

20 yourself; is that correct?

21 A Correct.

22 Q Who was -- did you know Mr. DeCarlo?

23 A Yes.

24 Q Who was he?

25 A He is an employee of the Environmental

1 Protection Agency, and I associated him with
2 an information center. He is the person that
3 had access to many reports all generated both
4 within EPA and elsewhere.

5 Q Relative to PCBs?

6 A Relative to PCBs as well as many, many
7 other materials.

8 Q He indicates in his cover letter that
9 he is attaching a copy of a paper of
10 environment levels of PCBs. And that paper is
11 a document that begins on the page Bates No.
12 CER 014831?

13 A Yes.

14 Q And it continues over to 014835?

15 A That is correct.

16 Q He says he is also attaching a
17 contractor's report describing PCB levels in
18 soil samples taken from the area surrounding
19 your facility in St. Louis. Is that the
20 document that begins on the page with Bates
21 No. CER 014836?

22 A That's what he is referring to, yes.

23 Q And it continues to the end of the
24 exhibit?

25 A Correct.

1 Q Do you have any recollection of
2 receiving these documents from the EPA?

3 A I remember the document but not the
4 details in the document.

5 Q Do you know who the contractor was
6 that prepared the report that's at the end of
7 this Exhibit 36?

8 A I don't remember today, no.

9 Q Do you recall reviewing these
10 materials when you received them?

11 A Certainly.

12 Q Do you recall what your reaction was
13 as you reviewed them?

14 A I guess overall I describe it as not
15 surprising in terms of presence, but I recall
16 feeling rather comfortable at the very low
17 levels after decades of operation in that
18 area.

19 Q Turn over to 014836.

20 A Oh, may I add not surprising. I was
21 surprised by the decachlorobiphenyl reference.
22 The rest of the information I understand. I'm
23 sorry. I didn't mean to interrupt your
24 question.

25 Q That's all right. We will get to

1 that. The first question I have is at the top
2 of this page, second sentence, it says, "PCB
3 mixtures ranging from 16 percent chlorine to
4 68 percent chlorine have been produced over
5 the years." That's really not accurate, is
6 it?

7 A No. The 16 percent I don't know. I
8 believe, now I'm guessing, I think I know
9 where it came from.

10 Q That stage of the aroclor 1016?

11 A That's my interpretation of that.

12 Q Was there an aroclor 1268?

13 A Yes.

14 Q Was that produced at the Krummrich
15 plant?

16 A Yes. That was one of the solid ones
17 we talked about yesterday.

18 Q Do you know when production of 1268
19 ceased?

20 A Not specifically. Sometime in the
21 middle to the late '60s.

22 Q Prior to '69?

23 A Correct.

24 Q In the next paragraph there is a
25 discussion of decachlorobiphenyl. And the

1 author of this report says,
2 "Decachlorobiphenyl has been reported as a
3 component of only one aroclor mixture, aroclor
4 1268." Do you agree with that statement?

5 A Well, not knowing what he means when
6 he says been reported in the composition, I
7 find that hard to agree or disagree.

8 The ability to detect the isomers in
9 the PCBs was not available until the late
10 '60s, early '70s. I don't know who analyzed
11 the material such as aroclor 1268 to be able
12 to detect the decachlorobiphenyl in that
13 period of time when the capability was
14 available.

15 Q So the capability to analyze for the
16 individual isomers only came about after you
17 stopped making 1268?

18 A That is my understanding, yes, sir.

19 Q So you would have had to have some of
20 this 1268 sitting around in order to be able
21 to analyze it for decachlorobiphenyl?

22 A True.

23 Q Do you know if Monsanto ever analyzed
24 aroclor 1268 for its individual isomers?

25 A I don't recall seeing an analysis of

1 aroclor 1268.

2 Q The reference for the statement in
3 this report is Hutzinger, Safe and Zitko,
4 1974. Are you familiar with any work with
5 that reference?

6 A Yes. Those three investigators were
7 quite active in analytical work relating to
8 PCBs. At the moment I have forgotten which
9 laboratory they are associated with, but they
10 were active.

11 Q Are you familiar with a particular
12 report that is being referred to in this
13 exhibit?

14 A Not this particular aroclor, no.

15 Q It looks to me like that parenthetical
16 is almost in the nature of a footnote citing
17 to a source. And I'm just wondering if you
18 are aware of any particular publication by
19 those three individuals in 1974 dealing with
20 PCBs?

21 A Yes. I don't remember specifically,
22 but I do know they were very active and they
23 published several reports.

24 Q Do you have any of those reports?

25 A No.

1 Q Do you know if Monsanto maintains any
2 of those reports?

3 A I don't know.

4 MR. RICCI: Joe, I'm going to make a
5 request at this point that if Monsanto retains
6 a copy of the 1974 Hutzinger, Safe and Zitko
7 report that's referenced in this exhibit, we
8 would ask that it be produced.

9 MR. NASSIF: My comment on that is I
10 will bet that that is an article that's
11 generally available in the literature, and it
12 is equally available to you as it may be to
13 Monsanto. So you can go get it if you want
14 it. Other than that, I will check and see if
15 we have it, and then we will respond
16 consistent with the federal rules of
17 discovery.

18 Q (By Mr. Ricci) What were the uses for
19 1268?

20 MR. NASSIF: Objection. It was asked
21 and answered, and he testified to it
22 yesterday.

23 A I don't claim to know all the uses,
24 but the principal use that I'm aware of is an
25 ingredient in plastic type materials as a fire

1 retardant ingredient.

2 Q (By Mr. Ricci) This was the aroclor
3 that you indicated was in a powder form?

4 A Yes.

5 Q And that powder was incorporated in
6 the plastics?

7 MR. NASSIF: Objection. Asked and
8 answered.

9 A Yes. And it wasn't really a powder
10 such as talcum powder. It was more grittier
11 like table salt.

12 Q (By Mr. Ricci) Would you consider the
13 use of that aroclor in plastics manufacturing
14 to be an open use as we have used that term in
15 this deposition?

16 A We did for purposes of our withdraw
17 program, yes, sir.

18 Q That was withdrawn -- 1268 was
19 withdrawn from the market as a result of the
20 control program?

21 A Well, it wasn't manufactured when the
22 program was instituted.

23 Q Okay.

24 A And it would not have been available
25 to any customer who requested it.

1 Q Do you have any knowledge of whether
2 PCBs could be released from plastics that had
3 incorporated 1268 into it?

4 A Yes.

5 Q And would the PCBs leach out or
6 otherwise be released from that plastic?

7 A I don't have any information that
8 would say that the PCBs such as the 68 we are
9 talking about would evaporate or leach out of
10 the plastic in which it was incorporated.

11 Q Were you aware that an EPA contractor
12 was taking soil samples around the Krummrich
13 plant for PCBs at the time that the samples
14 were being taken?

15 A No.

16 Q So you didn't have anybody with them
17 submitting samples or anything like that?

18 A No.

19 Q Were you ever able to ascertain the
20 exact locations of the sampling points that
21 are depicted on page CER 014839?

22 A No.

23 Q Did you try?

24 A Yes. We tried getting it from EPA,
25 and they would not release it.

1 Q Did you know they were taking samples
2 from the influent and effluent of the waste
3 water treatment plant?

4 A No.

5 Q On page CER 014838, the authors of
6 this report suggest that the pattern of
7 contamination may suggest an airborne
8 transport of the PCBs from the facility.

9 Did you ever do any investigation of
10 whether PCBs were being transported through
11 the air and deposited in areas in and around
12 the plant?

13 A No.

14 Q Did you do any follow-up to the
15 statements in this report?

16 A No.

17 Q Why not?

18 A Because the amounts that were reported
19 were considered to be tolerable or acceptable.

20 Q To you?

21 A Yes.

22 Q Did the EPA ever tell you that those
23 amounts were acceptable to them?

24 A Not in those terms, no.

25 Q In words to that effect?

1 A Well, I had the opposite reaction
2 where they didn't think it was a problem so
3 they didn't say we accept. We don't think
4 there is a problem, so it implied acceptance.

5 Q Does the degree of chlorination of an
6 aroclor affect the likelihood that it would be
7 released into the air in any way?

8 A Yes. The lower the chlorination, the
9 more apt it is to vaporize.

10 Q Once Monsanto stopped manufacturing
11 PCBs, do you know what the company did with
12 the manufacturing operation at the Krummrich
13 plant?

14 A They dismantled it.

15 Q Do you know what they did with the
16 sewers in the PCB department?

17 A Not in detail, no.

18 Q Did Monsanto continue to sample its
19 effluent for PCBs once it stopped
20 manufacturing PCBs at the Krummrich plant?

21 A At that time I wasn't involved with
22 the PCB situation. I don't remember any
23 reports of that type.

24 Q Were you involved in any decision to
25 continue to sample or not to continue to

1 sample for PCBs after the --

2 A No.

3 Q -- manufacture was discontinued?

4 A I was not.

5 Q Did you ever hear of any decisions in
6 that regard or get any information any other
7 way?

8 A No.

9 (Papageorge Deposition Exhibit Number 37
10 marked for identification.)

11 Q (By Mr. Ricci) Mr. Papageorge, let me
12 show you a document that's been marked as
13 Exhibit 37 to your deposition.

14 This is a document with Bates No. CER
15 008621 and 622, M2390 and M2391.

16 A I have read the exhibit.

17 Q In September of 1980, you were
18 director of environmental operations for
19 Monsanto intermediate chemicals?

20 A Yes.

21 Q Exhibit 37 is a memo from Mr. Molloy
22 to three individuals, including yourself,
23 dated September 5, 1980. Was Mr. Molloy the
24 plant manager of the Krummrich plant at that
25 time?

1 A Yes.

2 Q And who was Mr. Brasfield?

3 A He was the general manager of
4 manufacturing for the Monsanto intermediate
5 chemicals company.

6 Q And how about Mr. Flint?

7 A I'm having difficulty recalling
8 Mr. Flint's title at the time, but he was the
9 former plant manager and moved to the general
10 offices and was involved with manufacturing as
11 it related to Monsanto chemical intermediates
12 company.

13 Q Also copied on this memo are a J. J.
14 Spano. Who is that?

15 A He is a member of Monsanto's corporate
16 public relations department.

17 Q How about J. R. Thurrott?

18 A Thurrott, Mr. Thurrott was the general
19 manager of personnel for the Monsanto chemical
20 intermediates company.

21 Q There is a handwritten note in the
22 upper, right-hand corner, "XC:SGC, DRB." You
23 see that?

24 A Yes.

25 Q Do you recognize that handwriting?

1 A I believe I do.

2 Q Whose do you think it is?

3 A That's Mr. Spano's.

4 Q Do you know who SGC and DRB are?

5 A SGC is Sarah Collins who reported to
6 Mr. Spano.

7 Q Also in public relations?

8 A Public relations. And DRB is another
9 public relations person. Barton, I think it
10 is Don Barton or Dan Barton also in public
11 relations.

12 Q Do you recall the incident that is
13 discussed in this memo of the smoking ditch?

14 A This is the one I had referred to
15 earlier about the dog that was injured because
16 of its exposure to this area. This is what I
17 associate with this situation described in
18 this letter or memo.

19 Q Part of the same incident?

20 A Correct.

21 Q And do you understand this ditch
22 referred to in this memo to be Dead Creek?

23 A Yes.

24 Q Does this memo refresh your
25 recollection with respect to any discussions

1 you may have had on the situation that's
2 described here in Dead Creek?

3 A Of course I did have recollection of
4 the incident. I don't think it really brought
5 to mind any more details than my memory
6 allowed me to remember.

7 (Papageorge Deposition Exhibit Number 38
8 marked for identification.)

9 Q (By Mr. Ricci) This is Exhibit 38 to
10 your deposition.

11 This is a document with Bates No. CER
12 008115, M1916.

13 A I have read the memorandum.

14 Q The memo is dated September 18, 1980,
15 and it is from Mr. Mieure?

16 A Mieure.

17 Q Mieure to yourself regarding the
18 analysis of soil from Dead Creek. Does this
19 memo relate to the incident that was described
20 in Exhibit 37 that we just looked at?

21 A Yes.

22 Q The smoking ditch?

23 A Yes.

24 Q Who was Mr. Mieure?

25 A Mr. Mieure was in Monsanto's corporate

1 analytical research laboratory in charge of a
2 team that did what I'm going to call
3 sophisticated analytical work as compared to
4 routine plant analytical work.

5 Q Why was Monsanto analyzing these
6 samples?

7 A To answer the question that was
8 raised. Were any of Monsanto's materials
9 involved with this situation?

10 Q And you felt that the analysis that he
11 was performing could assist in answering that
12 question?

13 A Yes.

14 Q Who selected the materials that were
15 going to be analyzed for?

16 A I don't think it was any one person.
17 It was a consensus of the plant people, and I
18 contributed and the research people as to the
19 kinds of materials that were present at the
20 Krummrich plant. Therefore, it was decided to
21 look for them.

22 Q What's the difference between total
23 phosphorous and elemental phosphorous?

24 A Elemental refers to phosphorous in its
25 purist state. I don't know how else to

1 describe it. It is just phosphorous itself.

2 Q Okay.

3 A It is the material that burns when you
4 expose it to air. You have to keep it under
5 water. The total phosphorous includes not
6 only this free standing phosphorous but also
7 phosphorous that is found, say, in baking
8 powder and in soap detergent and the phosphate
9 esters and so on. It is chemically combined.

10 Q Why were you analyzing for both
11 elemental and total phosphorous?

12 A Because the plant referred to
13 elemental phosphorous as a raw material and
14 used it to make the phosphorous esters, as an
15 example.

16 Q So that either elemental phosphorous
17 or total phosphorous results could be
18 indicative of Monsanto involvement in this
19 contamination?

20 A That is possible, yes.

21 Q What are phosphate esters?

22 A They are chemicals made by combining
23 -- I will try to keep it simple -- a phosphate
24 acid with an alcohol. So esters are a
25 combination of alcohols and acids, and the

1 acid in this case is phosphorous based.

2 Q Were phosphate esters manufactured at
3 the Krummrich plant?

4 A Yes.

5 Q Do you know what the raw materials
6 were in that manufacturing process?

7 A If memory serves me, phosphorous
8 oxychloride, POCl_3 , plus one of several
9 alcohols, either ethyl alcohol or butyl
10 alcohol or isopropyl alcohol and some other
11 alcohols.

12 Q Do you know whether a material by the
13 name of cresylic acid was used in the
14 manufacture of phosphate esters?

15 A Yes. Tricresyl phosphate was made
16 from that, yes.

17 Q And that's a phosphate ester?

18 A The TSP is a phosphate ester, yes.

19 Q TSP?

20 A TCP, I'm sorry. Tricresyl phosphate.

21 Q Is one of the phosphate esters?

22 A Correct.

23 Q Is it your understanding that methyl
24 phenols are components of cresylic acid?

25 A Methyl phenol, my recollection of

1 chemistry is fading. I don't know. I would
2 have to study it a bit.

3 Q That's okay. Thank you. Why were the
4 26 metals included in this analysis?

5 A There is an analytical procedure that
6 was developed, used by many competent labs to
7 scan and search for these 26 metals. And
8 rather than go through the process of picking
9 out any one metal, like lead or mercury or
10 cadmium, the idea was to just use that
11 procedure and scan for all of them. As long
12 as you are going through the motions of
13 analysis, look for all of them.

14 Q I'm sorry. Go ahead.

15 A That's I have all.

16 Q Were there particular metals that you
17 felt were suggestive of a Monsanto
18 involvement?

19 A Well, certainly the mercury that's
20 used in the chlorine generation plant was
21 present in the plant. That's the only metal
22 that I'm aware of that would have been of
23 significance.

24 Q Is it your understanding that that's
25 why the metals analysis was included in this

1 analytical regime?

2 A I don't know that mercury itself was

3 the reason. It was part of this metal group.

4 And as long as you are going to analyze for

5 it, see what else happens to be there.

6 Because that information, although it may not

7 be related to Monsanto, may help determine

8 other sources of these materials.

9 (Papageorge Deposition Exhibit Number 39

10 marked for identification.)

11 Q (By Mr. Ricci) Mr. Papageorge, let me

12 show you a document that's been marked as

13 Exhibit 39 to your deposition.

14 This is a document with Bates No. CER

15 037285 through 287, M7321 through M7323.

16 A I have glanced the document.

17 Q Do you recognize this document at all?

18 A I have seen it before.

19 Q You have?

20 A Yes, sir.

21 Q When did you see it?

22 A I guess the other day when I was

23 talking with Mr. Nassif.

24 Q Do you know who prepared it?

25 A I do not.

1 Q Do you know why it was prepared?

2 A I would be guessing. No.

3 Q On the second page of this document

4 there is a statement, "'60 to '72 Waggoner

5 trucking was major trucking for WGK plant

6 products, including oil additives and some

7 PCBs." Do you see that?

8 A I do.

9 Q Is that consistent with your

10 recollection of the Krummrich plant's use of

11 Waggoner Trucking?

12 A The hesitation I have, I didn't know

13 that he was the major trucker. I knew he was

14 one of the truckers for these kinds of

15 materials and the examples listed.

16 Q So other than describing Waggoner as a

17 major trucker, this document is consistent

18 with your recollection?

19 A Correct.

20 Q On the first page, there is a

21 statement, "'31 to '33," and then across from

22 that it says, "Overflow from WGK went to Dead

23 Creek for excessive rain and flood water." Do

24 you have any knowledge of that situation

25 that's described in this memo?

1 A I do not.

2 (Papageorge Deposition Exhibit Number 40

3 marked for identification.)

4 Q (By Mr. Ricci) Mr. Papageorge, let me

5 show you Exhibit 40 to your deposition.

6 This is a document with Bates No. CER

7 000002 through 08, M0852 through M0858. And I

8 would ask you to take a look at that.

9 A I have reviewed the exhibit.

10 Q Mr. Papageorge, Exhibit 40 is an

11 October 2, 1980, memo from Mr. Spano to a

12 number of people including yourself regarding

13 the redraft of background sheet on Krummrich

14 waste disposal. Why was that background sheet

15 on Krummrich waste disposal being developed?

16 A This is typical of the kinds of

17 information that the public relations

18 departments like to have on hand in the event

19 the subject arises, becomes of general

20 interest.

21 This reflects Mr. Spano's attempt in

22 essence to do some homework before he has an

23 urgent need for this kind of information.

24 Q Do you know what kind of homework he

25 did to develop this document?

1 A I know he talked to plant people and I
2 know he perused some old files. And he wrote,
3 as I remember, several drafts that he
4 circulated for comments, and this is
5 representative of one of those attempts to
6 circulate and get feedback from the readers.

7 Q What old files did he review?

8 A Well, I don't know how to describe
9 them. They are just old historical kinds of
10 files that are available, that were available
11 to Mr. Spano.

12 Q Historical files from the plant?

13 A From the plant, yes.

14 Q Did you have occasion to see any of
15 the old files that he looked at?

16 A I did not.

17 Q Why were you being provided a copy of
18 this memo?

19 A Because he knew I was involved with
20 waste and environmental issues. And in 1980,
21 as director of environmental operations he
22 felt I should be supplemented and tuned in.

23 Q Was this document prepared in response
24 to the concerns that had arisen regarding Dead
25 Creek?

1 A That was -- yes. That was a factor in
2 triggering the action that you see here, yes.

3 Q There is a statement at the bottom of
4 the first page of, "Bill Papageorge probably
5 already contacted you about a map to explain
6 the WGK information." Do you see that?

7 A Yes.

8 Q Do you know what that reference is to?
9 Do you have any recollection as to contacting
10 Heisler regarding a map?

11 A From earlier drafts, and I don't
12 remember just which one, I suggested to John
13 that perhaps a map would help the readers of
14 these kinds of documents orient themselves and
15 relate the plant to the Dead Creek site. And
16 Mr. Spano felt that that might be worth
17 looking into, and he asked Mr. Heisler, who
18 was the environmental contact back at the
19 plant, for a copy of such a map.

20 Q What kind of a map were you talking
21 about? Just the street map, aerial map, or
22 map of the sewers?

23 A Well, I was hoping to get a map of the
24 terrain really showing, if possible, the
25 original Dead Creek as it went from Granite

1 City into the Mississippi River and then the
2 present appearance of that ditch or creek.

3 Q Was the purpose of this background
4 sheet to equip the public relations department
5 to respond to inquiries?

6 A Yes.

7 Q From the outside?

8 A Yes.

9 Q On the first page of the background
10 sheet, second page of the exhibit, there is a
11 description in the paragraph under the heading
12 "Background" on water runoff. There is a
13 description of some of the history of Dead
14 Creek. Do you agree with the description
15 that's set forth in this paragraph?

16 A Yes. I have no reason to disagree.

17 Q Flip over to the next page, please.
18 The second sentence of the first paragraph
19 states, "After 1933, all effluent from the
20 plant flowed into the village sewer system."
21 Do you see that?

22 A Yes.

23 Q Do you know if in preparing this
24 report anyone from Monsanto did any
25 investigation as to whether after Monsanto's

1 effluent got into the village sewer system it
2 ever escaped from the village sewer system
3 into Dead Creek?

4 A I don't know of any such activity.

5 Q Are you familiar with an individual
6 who worked at Monsanto in the engineering
7 department by the name of J. W. Caskey?

8 A I recall the name. I can't picture
9 the person. That's all I really remember.
10 The name is familiar, and I associate it with
11 some technical engineering effort.

12 Q Are you familiar with an individual by
13 the name of C. N. Stutz? I think the first
14 name might be Cliff.

15 A Cliff Stutz, yes. Yes.

16 Q Who was Cliff Stutz?

17 A I associate Mr. Stutz as an engineer,
18 as a sanitary engineer I think was his
19 training. I associate him with Monsanto's
20 corporate engineering department relating to
21 waste water treatment engineering.

22 Q Are you aware of any reports prepared
23 which Mr. Caskey or Mr. Stutz in the 1960s
24 that talk about discharges from the village
25 sewer system into Dead Creek?

1 A No.

2 Q Do you know if any such reports were
3 reviewed or evaluated in the course of
4 preparing the document that we have marked as
5 Exhibit 40?

6 A I do not know.

7 (Papageorge Deposition Exhibit Number 41
8 marked for identification.)

9 Q (By Mr. Ricci) Mr. Papageorge, I'm
10 handing you a document that's been marked as
11 Exhibit 41 to your deposition. This is a
12 document with Bates No. CER 008156 through
13 159, M1956 through M1959.

14 A I have reviewed the exhibit.

15 Q This is an October 3, 1980, memo from
16 an R. H. Sinise to Mr. Heisler. Who was R. H.
17 Sinise?

18 A He was a member of Mr. Heisler's
19 environmental team at the Krummrich plant.

20 Q And you were copied on this memo?

21 A Yes.

22 Q The memo is minutes of a meeting with
23 the IEPA in Springfield. Were you aware that
24 this meeting was taking place prior to the
25 meeting?

1 A Yes.

2 Q And what was your understanding as to
3 the purpose of the meeting?

4 A For the two parties to communicate
5 with each other regarding this Dead Creek
6 situation and sampling program involved.

7 Q If you flip over to the second page of
8 the document, right above the word Kelty
9 towards the bottom, the paragraph states, "We
10 stated Monsanto stopped manufacturing 1248 in
11 1970." Is that an accurate statement to the
12 best of your understanding?

13 A Yes. No. Wait. No. 1248 was still
14 sold as a heat transfer fluid after 1970, so
15 it was being manufactured.

16 Q Why did Monsanto ultimately stop
17 manufacturing 1248?

18 A Well, the only remaining use after
19 1970 was heat transfer systems which were
20 eventually phased out.

21 Q Prior to the time that you stopped
22 manufacturing all PCBs?

23 A Correct.

24 Q There is a statement on the next page
25 of the document attributed to Renkes. And

1 Renkes, I believe, is with the IEPA. Is that
2 your understanding?

3 A Yes.

4 Q It says, "Now that we have concluded
5 the sample discussions, do you have any
6 knowledge of a landfill east of Dead Creek and
7 300 yards south of Sauget City Hall?"

8 And the response from Heisler is that
9 he does not know of any of our products that
10 were landfilled on that site. Do you see
11 that?

12 A Yes.

13 Q Is that an accurate statement by
14 Mr. Heisler, to the best of your knowledge?

15 A I don't know.

16 Q If you look at Exhibit 40, which was
17 the background information document on
18 Krummrich waste disposal, there is a statement
19 that, "It is known that in the early times,
20 1917 to the 1930s, the plant disposed of its
21 wastes in a commercial landfill operated by
22 Leo Sauget in the area around the Sauget
23 Village Hall near Queeny and Nickel Avenues."

24 Does the description of the landfill
25 that I just read to you, to the best of your

1 knowledge, comport with the description of the
2 landfill in the statement attributed to
3 Mr. Renkes in Exhibit 41?

4 A Well, there is the common reference to
5 the nearness of the Sauget Village Hall. In
6 one case it is referred to as village hall and
7 the other one is Sauget City Hall.

8 Mr. Renkes' question included reference to
9 Dead Creek.

10 The summary by Mr. Spano to that
11 particular part of the report does not relate
12 to this landfill operated by Mr. Sauget with
13 Dead Creek, so I can't interpret that any
14 different than any other reader can.

15 Q Okay.

16 (Papageorge Deposition Exhibit Number 42
17 marked for identification.)

18 Q (By Mr. Ricci) Mr. Papageorge, let me
19 show you Exhibit 42 to your deposition.

20 This is a document with Bates No. CER
21 008280 through 008290, M2080 through M2090.

22 And my question is only going to relate to the
23 first page of the document.

24 A I have read the first page.

25 Q This document is an October 28, 1980,

1 report prepared by a Mr. Kaley. And you are
2 on the distribution list; is that correct?

3 A That is correct.

4 Q The document refers to sampling an
5 analysis of materials from Dead Creek; is that
6 correct?

7 A Yes.

8 Q And in the heading under the abstract
9 section, there is a description of the
10 materials that were analyzed for. Do you see
11 that?

12 A Yes.

13 Q Were you aware that this sampling was
14 taking place?

15 A Certainly.

16 Q Do you know how the compounds that
17 were analyzed for were determined?

18 A We discussed that earlier in that
19 previous memorandum.

20 Q This is the same sampling that was
21 referred to in the previous memorandum?

22 A Yes, sir.

23 Q Because I don't think that the
24 previous memorandum referred to chlorobenzenes
25 and chlorophenols. And I was wondering --

1 let's see if I can find it quickly.

2 A It does not do that, but this is the
3 same program.

4 Q Do you know why chlorobenzenes and
5 chlorophenols were added to the sampling
6 regime?

7 A Those are products manufactured at the
8 Krummrich plant, and since they are
9 chlorinated materials, it was decided to look
10 for them.

11 Q Their presence in Dead Creek would
12 also suggest a connection to Monsanto?

13 A If they are there, yes.

14 Oh, if you look at Exhibit 41 on
15 page --

16 Q What's the date on 41?

17 A October 3, 1980.

18 Q Okay.

19 A This is the meeting with the Illinois
20 state authorities representatives. On page
21 CER 008158 just above Mr. Sinise's signature,
22 the paragraph refers to the additional
23 materials that would be analyzed, and that
24 covers the materials we found on this Exhibit
25 42.

1 Q Does that suggest to you that these
2 additional compounds, the chlorobenzenes and
3 chlorophenols were added as a result of
4 meeting with the IEPA?

5 A Yes.

6 Q Do you know if they were added at
7 Monsanto's suggestion or the IEPA's
8 suggestion?

9 A I cannot tell.

10 (Papageorge Deposition Exhibit Number 43
11 marked for identification.)

12 Q (By Mr. Ricci) Mr. Papageorge, let me
13 show you Exhibit 43 to your deposition.

14 This is a document with Bates No. CER
15 008252 through 255, M2052 through M2055.

16 A I have read the exhibit.

17 Q This is a November 10, 1980, memo from
18 Mr. Sinise to Mr. Heisler regarding a meeting
19 with the IEPA on Dead Creek. Were you aware
20 that this meeting was taking place?

21 A Yes.

22 Q If you turn over to the third page of
23 the exhibit, there is a discussion of PCBs.

24 Do you see that?

25 A I do.

1 Q There is a statement, "Paul further
2 stated that the sewer effluent of our plant
3 since 1932 could not have gone into Dead Creek
4 since the creek is 1.9 feet higher than the
5 sewer system."

6 Do you know what information
7 Mr. Heisler based that statement on?

8 A I do not.

9 Q Did you have any discussions with
10 Mr. Heisler regarding whether Monsanto's sewer
11 effluent could have gotten into Dead Creek?

12 A No.

13 Q If in fact sewer effluent emanating
14 from Department 246 did get into Dead Creek,
15 would Monsanto be a likely source of the PCBs
16 found in Dead Creek?

17 MR. NASSIF: Objection. Are you
18 asking him to speculate?

19 MR. RICCI: I'm asking him to answer
20 the question if he can.

21 A I don't know.

22 MR. NASSIF: I will stay with my
23 objection.

24 Q (By Mr. Ricci) Were you aware that
25 the IEPA asked Monsanto as a good neighbor to

1 participate in the mitigation of the Dead

2 Creek problem?

3 A As a result of receiving a copy of

4 this memorandum I was made aware of that, yes.

5 Q Did you have any discussions as to

6 what Monsanto's response should be?

7 A I personally wasn't involved in those

8 discussions.

9 Q Why is that?

10 A Primarily because it is a top

11 management kind of decision that goes through

12 the manufacturing ranks and involves their

13 resources.

14 Q What was your title again in November

15 of '80? Manager or director?

16 A Of environmental operations, yes.

17 Q And your responsibilities did include

18 the Krummrich plant, didn't it?

19 A Yes, sir.

20 Q But you had no input into the decision

21 as to how to respond to the IEPA's inquiries

22 on Dead Creek?

23 A I had no input regarding the decision

24 on whether or not we would participate in a

25 cleanup.

1 Q Turn over to the last page of the
2 exhibit, please. In the next to the last
3 paragraph there is a reference to Renkes'
4 questioning as to whether Monsanto had records
5 concerning PCB disposal and whether the agency
6 could review these records.

7 And my question to you is do you know
8 whether as a result of this meeting or these
9 questions by Mr. Renkes, Monsanto ever gave
10 the IEPA access to its documents regarding
11 PCBs disposal?

12 A They did not.

13 Q And why not?

14 A You will have to ask the legal
15 department.

16 Q I don't think they would tell me.

17 MR. NASSIF: Objection. Calls for
18 speculation on the part of counsel.

19 (Papageorge Deposition Exhibit Number 44
20 marked for identification.)

21 Q (By Mr. Ricci) Mr. Papageorge, I'm
22 handing you a document that's been marked as
23 Exhibit 44 to your deposition.

24 This is a document with Bates No. CER
25 009054, M2652.

1 A I have read the memorandum.

2 Q This is a November 18, 1980, memo from
3 a Mr. Cunningham to a Mr. Mahoney. And you
4 are shown as having been copied on this memo?

5 A Yes.

6 Q Do you recall receiving a copy of this
7 memo?

8 A Yes.

9 Q Who was Mr. Cunningham?

10 A He was vice president and managing
11 director of Monsanto chemical intermediates
12 company.

13 Q And who was Mr. Mahoney?

14 A He was the chief executive -- I'm
15 sorry. He was president of Monsanto at the
16 time.

17 Q Monsanto Company?

18 A Yes. Reporting to Mr. Hanley who was
19 the chief executive officer.

20 Q And who was Mr. Fernandez?

21 A Fernandez was the senior vice
22 president representing manufacturing.

23 Q Why was this memorandum prepared for
24 Mr. Mahoney?

25 A Mr. Cunningham wanted to communicate

1 with the top bosses.

2 Q Did you have any input into the
3 preparation of this memo?

4 A No.

5 Q There is a statement towards the
6 middle of the first paragraph, "There were
7 many other materials found in the samples, and
8 since this creek, or more appropriately named
9 ditch, has been sealed off from the Krummrich
10 plant and is approximately a half mile away,
11 it is reasonable to expect that we were not
12 the responsible parties for placing the PCB in
13 this area."

14 Do you know what is meant by the
15 reference to the Krummrich plant being sealed
16 off from the ditch?

17 A Well, there was reference to
18 backfilling and leveling off the surface. The
19 creek itself is not physically visible as it
20 used to work its way through the plant side.

21 Q So you understand this reference to be
22 to the filling of the creek on Monsanto
23 property?

24 A Correct.

25 Q The last paragraph -- in the last

1 paragraph, Mr. Cunningham generously offers
2 you to put on a 15 minute show-and-tell on
3 this subject. Do you see that?

4 A I do.

5 Q Did you ever put on any kind of
6 show-and-tell for Mr. Mahoney or anybody else
7 in upper management?

8 A No. Not on this subject.

9 (Papageorge Deposition Exhibit Number 45
10 marked for identification).

11 Q (By Mr. Ricci) Mr. Papageorge, I have
12 just handed you Exhibit 45 to your deposition.

13 This is a document with Bates No. CER
14 008091, M1893. And I will ask you to take a
15 look at it.

16 A I have read the document.

17 Q What is this document?

18 A This is a copy of a -- I'm going to
19 call it a note that was made following an
20 inquiry by a newspaper reporter of a Monsanto
21 individual.

22 Q The individual is Sarah Collins? I
23 was focusing on the bottom where it says
24 "handled by."

25 A Oh, yes.

1 Q She was with the public relations
2 department?

3 A Yes.

4 Q And under the heading "Source of
5 Answer," your name appears?

6 A She called me and asked me how to
7 respond, yes.

8 Q So you did have some input into this
9 response?

10 A Yes.

11 Q The question from the press appears to
12 be, "Does Monsanto make chlorobenzenes and
13 chlorophenols at Sauget." Is that correct?

14 A Yes.

15 Q Now, the response is, "Monsanto does
16 manufacture some members of the families such
17 as dichlorobenzene and dichlorophenol.

18 However, also keep in mind that the analyses
19 showed materials present from the families
20 that are not manufactured at the plant.

21 Chemicals such as trichlorobenzene and
22 tetrachlorobenzenes, materials that are found
23 in transformer oil in the way PCBs are found."

24 Now, Monsanto did at one time
25 manufacture trichlorobenzenes and

1 tetrachlorobenzenes at the Krummrich plant,

2 didn't it?

3 A Not that I'm aware of.

4 Q Monsanto did manufacture transformer

5 oil at the Krummrich plant; is that correct?

6 A Well, they blended ingredients

7 resulting in a transformer oil, yes.

8 Q And one of the ingredients blended

9 into those transformers was trichlorobenzene,

10 correct?

11 A A mixture of trichlorobenzenes and

12 tetrachlorobenzenes.

13 Q Did you advise Ms. Collins when she

14 made this inquiry of you that Monsanto had in

15 the past blended transformer oils at the

16 Krummrich plant using trichlorobenzene and

17 tetrachlorobenzene?

18 A I don't remember that. I don't know

19 today.

20 (Papageorge Deposition Exhibit Number 46

21 marked for identification.)

22 Q (By Mr. Ricci) Mr. Papageorge, I'm

23 showing you Exhibit 46 to your deposition,

24 which is a document with Bates No. CER 008455

25 through 462, M2224 through M2231. And I would

1 ask you to take a look at it.

2 Mr. Papageorge, Exhibit 46 is a report
3 on some sampling that was performed on the
4 Krummrich plant; is that correct?

5 A Yes.

6 Q And that's a document dated
7 February 27, 1981. On the first page after
8 the title page, the first paragraph, the
9 introductory paragraph indicates that the
10 samples were taken from the bed of Dead Creek
11 that had been filled in on the Monsanto
12 property?

13 A Yes.

14 Q And as I understand, the purpose of
15 this sampling was to determine whether you
16 would see results in the filled-in creek bed
17 on the Krummrich plant property similar to the
18 results that were found in the sampling of
19 Dead Creek south of the plant. Is that
20 correct?

21 A The purpose was to establish whether
22 the PCBs determined to be present in the Dead
23 Creek site by the EPA analysts came from
24 Monsanto's activities.

25 Q So you were sampling Dead Creek on

1 Monsanto's property?

2 A Yes.

3 Q And the theory was that if PCBs flowed
4 down Dead Creek to the point where the EPA
5 found them, then they would also show up on
6 the portion of Dead Creek on Monsanto's
7 property?

8 A It could be. That would be one area
9 to look into, yes.

10 Q That's why you were sampling this
11 particular area, correct?

12 A Yes.

13 Q Now, as I understand from previous
14 documents, Dead Creek was filled in on the
15 Monsanto property prior to the time that
16 Monsanto began manufacturing PCBs; isn't that
17 true?

18 A True.

19 Q Given that, why would sampling of the
20 creek bed, the filled-in creek bed on
21 Monsanto's property, be indicative of anything
22 relative to PCB samples found where the IEPA
23 found them?

24 A Well, the thought was that if
25 Monsanto's activities resulted in mishandling

1 of PCBs over the filled-in part of Dead Creek,
2 then it happened over a period of decades that
3 the operation was ongoing. Eventually that
4 material may have found its way at the site
5 that the EPA had looked at. They were trying
6 to connect the two geographically located
7 sites.

8 Q In taking these samples, they had to
9 core down through the fill to get to the creek
10 bed, correct?

11 A Yes. That's right.

12 Q And so all of the sampling results
13 were from the 12 to 19 feet below grade
14 interval? I think that's what's indicated in
15 the paragraph.

16 A Yes. Yes.

17 Q If you turn over to the page with
18 Bates No. CER 008458.

19 A I have it.

20 Q Under the sample with log number
21 1012108, the document indicates that that
22 sample is in the 17 to 19 foot interval,
23 correct?

24 A It does.

25 Q And then if you flip over to the next

1 page, under that sample number it gives the
2 results. And it indicates that the top
3 portion analyzed for 200 parts per million --

4 A Yes.

5 Q -- of PCBs. Do you see that?

6 A Yes. Yes.

7 Q How would PCBs have migrated 17 feet
8 below grade to get into this sample?

9 A Oh, it would take a solvent action
10 like a chlorobenzene dissolving it and
11 carrying it forward to move it where the other
12 samples were found.

13 (Papageorge Deposition Exhibit Number 47
14 marked for identification.)

15 Q (By Mr. Ricci) Mr. Papageorge, let me
16 show you Exhibit 47 to your deposition.

17 This is a document with Bates No. CER
18 008105 and 106, M1906 and M1907.

19 A I have read the letter.

20 (Papageorge Deposition Exhibit Number 48
21 marked for identification).

22 Q (By Mr. Ricci) I'm also going to show
23 you Exhibit 48, which is a document with Bates
24 No. CER 008113, M1914, and ask you to take a
25 look at that, too, and then you can handle

1 them together.

2 A I have read the memorandum.

3 Q Mr. Papageorge, Exhibit 47 is an

4 April 8, 1981, letter from the Illinois

5 Attorney General to Monsanto requesting

6 information regarding, among other things,

7 Dead Creek. Have you ever seen this document

8 before?

9 A I don't remember it.

10 Q And Exhibit 48 appears to be a

11 response to the document that we have marked

12 as Exhibit 47.

13 Have you ever seen Exhibit 48, which

14 by the way is an April 21, 1981, letter from

15 Mr. Phocion Park to a Mr. Reed Neuman at the

16 Attorney's General Office? Have you ever seen

17 Exhibit 48 before?

18 A I just don't remember it.

19 Q Do you know whether you had any

20 involvement in either reviewing the

21 information request or putting together the

22 response?

23 A No. Since I don't remember these, the

24 information there of course I had known

25 before, so I don't associate that with this

1 particular -- these two exhibits.

2 Q In the position that you held with
3 Monsanto in April of 1981, would you normally
4 be advised of governmental information
5 requests on environmental issues for the
6 plants that you were responsible for?

7 A Normally, yes.

8 Q But you just don't recall this one?

9 A I don't remember this one.

10 (Papageorge Deposition Exhibit Number 49
11 marked for identification.)

12 Q (By Mr. Ricci) Mr. Papageorge, let me
13 show you Exhibit 49 to your deposition, which
14 is a document with Bates No. CER 055310
15 through 312, M11944 through M11946.

16 A I have reviewed the exhibit.

17 Q This is a memo from a Mr. Boehm; is
18 that correct?

19 A Elmer Boehm.

20 Q To a number of individuals including
21 yourself regarding a tunnel cleanup. Who was
22 Mr. Boehm?

23 A In 1984, Mr. Boehm was assigned to the
24 Monsanto industrial chemicals company
25 manufacturing group reporting to

1 Mr. Matteucci, the director of manufacturing.

2 And he was a technical assistant.

3 Q Do you recall the tunnel cleanup

4 that's referred to in this memo?

5 A Yes, I do.

6 Q Where was this tunnel located?

7 A It is near the plant utilities

8 department or the steam plant.

9 Q What kind of a tunnel was it?

10 A Hard to describe.

11 Q Could you walk in it?

12 A Yes. It connected two underground

13 facilities.

14 Q What kind of facilities?

15 A Transformer vaults.

16 Q Do you recall how big it was?

17 A About as long as this room and about

18 half as wide, roughly. I don't know. About

19 20 feet by 10 or something like that.

20 Q What was the cleanup that's discussed

21 here to entail?

22 A Well, some PCBs were found.

23 Q In sediments?

24 A Just a lot of accumulation of debris,

25 dirt, all kinds of trash, if you will.

1 Q Did this tunnel have any connection to
2 the sewer system at the plant?

3 A No.

4 Q The second page of the document refers
5 to cleanup of PCB contaminated (125 ppm)
6 sludge. Was the 125 parts per million the
7 highest concentration that you found in the
8 tunnel?

9 A Yes.

10 Q And you felt that that concentration
11 warranted cleaning the tunnel out?

12 A Yes.

13 Q It says, "Source of the PCB
14 contamination is unknown, but likely occurred
15 during past manufacture of aroclor in an
16 adjacent block or past use of the PCB
17 materials in the powerhouse."

18 Did you have any understanding as to
19 how PCBs might have migrated from the
20 manufacturing department into this tunnel?

21 A No, I didn't.

22 Q How were PCBs used in the powerhouse?

23 A They are an ingredient in transformer
24 oils.

25 Q And there were transformers in the

1 powerhouse?

2 A In those vaults connected by this

3 tunnel.

4 Q Those were PCB laden transformers?

5 A Yes.

6 Q Were you aware of a project to study

7 and analyze the ground water beneath the

8 Krummrich plant?

9 A Yes. I recall such a study being

10 discussed.

11 Q Do you know whether the study was in

12 fact implemented?

13 A I remember a contractor being hired to

14 do that, yes.

15 Q Did you have any involvement in that

16 study?

17 A Only that I was made aware of it and I

18 supported it, but the details as to which

19 contractor to hire and what to do and what to

20 look for was the plant responsibility.

21 (Papageorge Deposition Exhibit Number 50

22 marked for identification.)

23 Q (By Mr. Ricci) Mr. Papageorge, let me

24 show you Exhibit 50, which I believe will be

25 the last exhibit to your deposition.

1 And it is a document with Bates No.

2 CER 053223, M11624.

3 A I have read the memorandum.

4 Q This is a November 22, 1985, memo from

5 Mr. Smull to a J. H. Craddock?

6 A Yes.

7 Q Who was Mr. Smull?

8 A Mr. Smull was the, at this time, the

9 plant environmental manager.

10 Q At the Krummrich plant?

11 A At the Krummrich plant.

12 Q And who was Craddock?

13 A Dr. Craddock was the individual at

14 corporate Monsanto who was associated now with

15 the PCB situation. Similar to the kind of

16 association I had at one time.

17 Q The document states, "The only PCBs on

18 site are those generated incidental to the

19 production of chlorobenzenes." Do you see

20 that?

21 A Yes.

22 Q Were you aware that PCBs were

23 generated in the production of chlorobenzenes?

24 A As a contaminant, yes. There was a

25 small amount made as we made chlorobenzenes.

1 Q How are -- are they created in the
2 manufacture of any particular chlorinated
3 benzene compound or isomer?

4 A No. They are present in all of them.

5 Q Does their creation occur during the
6 reaction of chlorine with benzene?

7 A Yes. During that phase at the right
8 temperature and particular temperature, you
9 can form the biphenyl from the benzene, and
10 the chlorine that's therefore intended for
11 benzene attaches itself to the biphenyl and
12 creates a contaminant.

13 Q How were these PCBs handled, at least
14 as of 1985?

15 A They were -- they ended up in the
16 still bottoms, the residue, and were
17 landfilled.

18 Q Now, Monsanto was manufacturing
19 chlorinated benzenes at the Krummrich plant
20 during the time of the PCB control program in
21 the early '70s, correct?

22 A Yes.

23 Q Was PCB material from the production
24 of chlorinated benzenes ever identified as a
25 potential source of PCBs to the sewers?

1 A No.

2 Q Why is that?

3 A It doesn't come into contact with any

4 water.

5 Q It is just taken straight from the

6 still bottom?

7 A Still bottom.

8 Q And loaded into drums?

9 A Drums and hauled away.

10 Q Do you know if there were any sewers

11 in the vicinity of the chlorinated benzene

12 distillation columns?

13 A Not specifically, but there are always

14 sewers in every department.

15 Q Were the chlorinated benzenes still

16 bottoms liquids or solids as they came out of

17 the still?

18 A As they came out of the still they

19 were hot liquid like a hot tar.

20 Q Do you know if that liquid was ever

21 dripped or spilled onto the ground in the

22 course of emptying those spills?

23 A Occasionally it was solidified and

24 would be scraped up.

25 Q It wouldn't run into the sewers? It

1 would solidify too quickly?

2 A It would not run very far.

3 MR. RICCI: That's it. That's all I

4 have. Any questions?

5 MR. NASSIF: You want to talk about

6 schedule?

7 (Discussion off the record)

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1 COMES NOW THE WITNESS, WILLIAM B.
2 PAPAGEORGE, and having read the foregoing
3 transcript of the deposition taken on the 21st
4 day of October, 1994, acknowledges by
5 signature hereto that it is a true and
6 accurate transcript of the testimony given on
7 the date hereinabove mentioned.

8 _____
9 William B. Papageorge

10
11 Subscribed and sworn to me before this ____
12 day of _____, 1994.
13 My Commission expires: _____

14
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16 _____
17 Notary Public

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1 State of Illinois

2 SS.

3 County of Madison

4 I, Tracey Balsitis, a Notary Public in and

5 for the State of Illinois, duly commissioned,

6 qualified and authorized to administer oaths

7 and to certify to depositions, do hereby

8 certify that pursuant to Notice in the civil

9 cause now pending and undetermined in the

10 United States District Court, Southern

11 District of Illinois, to be used in the trial

12 of said cause in said court, I was attended at

13 the offices of Coburn & Croft, in the City of

14 St. Louis, State of Missouri, by the aforesaid

15 witness; and by the aforesaid attorneys; on

16 the 21st day of October, 1994.

17 The said witness, being of sound mind and

18 being by me first carefully examined and duly

19 cautioned and sworn to testify the truth, the

20 whole truth, and nothing but the truth in the

21 case aforesaid, thereupon testified as is

22 shown in the foregoing transcript, said

23 testimony being by me reported in shorthand

24 and caused to be transcribed into typewriting,

25 and that the foregoing pages correctly set

1 forth the testimony of the aforementioned
2 witness, together with the questions
3 propounded by counsel and remarks and
4 objections of counsel thereto, and is in all
5 respects a full, true, correct and complete
6 transcript of the questions propounded to and
7 the answers given by said witness; that
8 signature of the deponent was not waived by
9 agreement of counsel.

10 I further certify that I am not of counsel
11 or attorney for either of the parties to said
12 suit, not related to nor interested in any of
13 the parties or their attorneys.

14 Witness my hand and notarial seal at St.
15 Louis, Missouri, this 7th day of November,
16 1994.

17 My Commission expires January 24, 1995.

18 -----

19 Notary Public in and for the

20 State of Illinois

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25</Transcript>
</TRN>